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ABSTRACT

To explore long-range outcomes of the Mt. Druitt Early Childhood intervention project and to investigate the development of children in Australian government schools, research was begun in 1981 which included elements of both followup and longitudinal studies. The Mt. Druitt Longitudinal Study, discussed in this report, broadened the emphasis of the Mt. Druitt Early Childhood Project to include variables such as differences associated with attendance or non-attendance at preschool and to present normative data for Australian school children. Approximately 900 subjects, third-grade children in the five Mt. Druitt schools plus non-disadvantaged children from school areas outside the Mt. Druitt area, were followed throughout the period from 1981 through 1983. Data from the Mt. Druitt Early Childhood Project (including pretest and posttest measures in the areas of mathematics, conservation, reading, vocabulary, languages, and social knowledge) were available for use. The longitudinal study assessed a large number of educational, motivational, social, psychological, environmental, behavioral, and parent-attitude variables. In this first annual report of the study, discussions of research methodologies, research problems, future goals, and results of analyses conducted in 1981 are offered. Related questionnaires, tests, and diagnostic measures are appended. (RH)

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MT. DRUITT LONGITUDINAL STUDY

SCHOOL OF EDUCATION MACQUARIE UNIVERSITY, NORTH RYDE, AUSTRALIA 2113

PS012959

FIRST ANNUAL REPORT

TO

BERNARD VAN LEER FOUNDATION

MAY, 1982

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Peter F. O'Brien

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MT DRUITT LONGITUDINAL STUDY

1981 PERSONNEL

Project Director:	Professor Hugh Philp.
Steering Committee:	Mrs. Audrey Bevan (N.S.W. Dept. of Education), Dr. Mina Golomb (N.S.W. Health Commission), Mr. Robert Turner (Smith Family), Professor Hugh Philp, Dr. Peter O'Brien.
Full time research staff:	
Field Director:	Dr. Peter O'Brien.
Senior Research Assistants:	Ms. Jillian Belme Ms. Anne Clark Ms. Karen Houghton
Part time research staff:	
Senior Research Assistant:	Ms. Pam Webster
Study Secretary.	Ms. Marilyn Fraser
Study Schools:	
Bidwill:	Mr. Allan Reynolds (Principal), Mr. Bill Connell (Deputy Principal), Ms. Barbara Ballard, Mr. Paul Breckney, Ms. Alexis Colley, Mr. Peter Daihlou, Ms. Liz Davis, Mr. Greg McClean, Mr. Mick Seery, Ms. Jenny Shannon, Mr. John Swanston (Teachers) Ms. Janet Boyd (Clerical Asst.).
Daceyville:	Mr. Ken Tye (Principal), Mr. Gordon Blanch, Ms. Pauline Blanch, Mr. Nino Kovacs (Teachers), Ms. Barbara Barnes (Clerical Assistant).
Dawson:	Mr. Ian Feneley (Principal), Mr. Ross Bowey, Ms. Yvonne Daley, Mr. Ian McBurnie, Ms. Lorraine Segula, (Teachers), Ms. Elaine Glendenning (Clerical Assistant).
Leonay:	Mr. Owen Smith (Principal), Mr. Len Choake, Mr. Graham Coker, Ms. Mandy Porter (Teachers) Ms. Jeffie Gilfillan (Clerical Asstistant).
Madang Ave:	Mr. Ken Masters (Principal), Mr. Colin Weiss (Deputy Principal/Acting Principal), Ms. Glynnis Gaskin, Ms. Leanne McGuire, Mr. Colin Mills (Teachers), Ms. Loris Ryan (Clerical Asst.).

Mosman: Ms. Gwen Cattell (Principal), Ms. Lorraine Badger, Ms. Myra Furner, Mr. John Metham, Ms. Merle Mitchell, Ms. Barbara Napier (Teachers), Ms. Judith Murray (Clerical Assistant).

Mt Druitt: Mr. Shah Allan (Principal), Mr. David Deale, Mr. Mark Young (Teachers), Ms. Joan Forrester (Clerical Assistant).

Whalan: Mr. Dick McCauley (Principal), Mr. Derris Devett, Mr. David Gorman, Ms. Robyn James, Mr. Colin Tolhearst, Ms. Jenny Trefry (Teachers), Ms. Pat McIntosh, Ms. Narelle Torr (Clerical Assistants).

Special Consultant to the Study:

Emeritus Professor Milly Almy,
U.S.A. Fulbright Scholar, 1981,
(with the Study for a period of 7 months)

FOREWORD

This is the first Annual Report of the Mt. Druitt Longitudinal Study. It sets out, in some detail, the basic objectives of the program, describes the activities carried out during the past year and presents some initial results of importance. The report has been prepared by the Field Director, Dr. Peter O'Brien and members of his staff. I should like to pay a personal tribute to the quality of their work and their devotion to it. The Longitudinal study is of potential great moment for Australian education and the work so far completed supports strongly the high hopes held by ourselves and by the funding and supporting agencies.

It would be more than remiss by me not to pay tribute to those agencies, in particular the New South Wales Department of Education and the State Health Commission. The contribution of these institutions and their officers is considerably beyond the commitment originally made, as may readily be seen from the pages which follow. It is certain that as a consequence the basic objectives of the project are likely to be realised, provided always that funds continue to be made available.

In this context, the disbandment of the Educational Research and Development Committee (ERDC) of the Australian Government has raised serious problems for the future of the project. When the request was made to the Bernard van Leer Foundation for funding of the Longitudinal Study, ERDC was also approached: a "setting up" grant was made by that body to enable the project to begin operation in the last few months of 1980 and funds were also provided for 1981. A firm indication was given in our application that the project was intended to continue in its first phase until the end of 1984 and all discussions with members of ERDC were on this basis. It was, of course, made perfectly clear to us that because of the funding policy of the government, grants would have to be made on an annual basis. Termination of ERDC in 1981, with some quite minor carry over for the first few months of 1982, has accordingly presented us with serious problems. However, in a series of useful discussions the Australian Minister for Education undertook to give consideration to making special provision for the study in the 1982/1983 and 1983/1984 budget papers. This is still under active review.

A little should be added about the relationship of the Longitudinal Study to the "Mt. Druitt Early Childhood' project which ended in 1980 and which was also supported by the Foundation, the State Education and Health Authorities, by the Smith Family and by the Australian Government.

The Longitudinal Study has grown out of the earlier project but its methods, aims and objectives are quite different. In essence the current study is a quasi-experimental research project: the earlier work was an action program in early childhood education. It is true that the design of the early childhood project contained some elements of a research character. These included: the decision to implement five ECE programs each with a different theoretical basis; the careful development of teacher education specifically related to each curriculum; and above all, the elaborate monitoring and evaluation procedures. However, the focus was on effective curriculum and teaching and their outcomes for disadvantaged children. When - as happened on a number of occasions - there was any conflict between the efficiency of a program as it related to children and the efficacy of model research procedures the decision was invariably in the direction of the curriculum, teaching methods or the school organisation most beneficial to the children as against the requirements of a rigorous research design. This should clearly be understood both in any interpretation of the outcomes of the early childhood project and more important for present purposes, because of the implications for the Longitudinal Study.

The early childhood project was not begun with the Longitudinal Study in view. Had this been the objective, selection of children, their allocation to class, randomisation of teachers and design of control measures would have taken a quite different course and one much removed from purely teaching/learning objectives. On the other hand, because of the evaluation design a great deal of data was obtained about a particular set of children over a period of three years. These data, moreover, were to some extent those which would have been obtained had the objective been a Longitudinal Study. This point was made to us on a number of occasions and it was strongly suggested that we should "convert" the program. This was plainly impossible as well as undesirable from a research viewpoint: more important there were clear commitments to the children and to the schools

Nonetheless we were conscious of the need for a major Longitudinal Study of Australian children and agreed that our data might form part of a pilot program which might provide useful research leads and solve some difficult methodological problems for a major Longitudinal Study.

It was in this context and in this spirit that we approached the Bernard van Leer Foundation and other authorities for assistance. We would not claim that the Mt. Druitt project is a definitive longitudinal study of Australian children. The reasons for this are obvious. It is, in fact, two overlapping mutually supportive studies of specific groups of children:

a) a study of a sample of children from four schools or school areas in the city of Sydney.
Continuous data will be available for up to 900 children, beginning in Year 3 of their schooling. Post hoc data from interviews, questionnaires, record cards and so on have been obtained for these children but, to repeat the strictly comparable longitudinal data gathered under comparable conditions by the same research workers - medical, social, educational - began for most children in Year 3 of their schooling in 1981.

b) A follow-up study of children who completed the earlier program.
For this group longitudinally gathered data began in preschool or kindergarten in 1977 or 1978. Many of these children are also part of the longitudinal study but it is essential to note that in a strictly research sense comparable data for them also begins in 1981. The additional information available about them is a coincidental bonus.

Nonetheless, although the sample is restricted to less than 1,000 children in Sydney it is an important seminal study. It should provide some useful data, until now not available, on the development of a group of Australian children in government schools. For reasons of sampling and design it will not be, indeed cannot be definitive and this should be clearly understood. On the other hand, it will be the first major study of its kind.

This fact alone makes it my pleasant task to express my gratitude to those who share our enthusiasm and who are supporting the study - the Foundation, the State Departments and so on. The success or failure of the program will, as before, depend heavily on the co-operation and collaboration of the schools and the teachers. As in the earlier work, their help has been superb. We have also had to call on parents for support and their response to interviews and questionnaires has been a complete answer to those who accuse Australian parents of apathy about the education of their children.

HUGH PHILP
Project Director.

ACKNOWLEDGEMENTS

Any field-based study in education is totally dependent upon the goodwill, interest and co-operation of the families, schools, teachers and children who form the focus of investigation. In a longitudinal study, where any lack of co-operation could destroy years of work, the study's fate lies firmly in the hands of the subjects; without their willing involvement, even simple plans would go badly astray.

The two Mt Druitt studies have been fortunate in attracting whole-hearted support from many people. Special thanks must go to the hundreds of involved parents and children of Mt Druitt, Mosman, Leonay and Daceyville. To the Principals and teachers of the schools, whose support for educational research has proved to be at the highest professional level, we express our gratitude.

Our special thanks go to Emeritus Professor Milly Almy who, during the time she was with us, gave personal support to all, plus the benefit of her experience and wisdom, through quietly delivered, well-chosen words, and provided a model of commitment to, and persistence in pursuit of, academic goals of the highest standards.

STUDY MANAGEMENT

The Longitudinal Study has retained the concept of a broadly-based Steering Committee, first adopted in the management plan of the Mt Druitt Early Childhood Project, but has abandoned the Field Committees which were featured in that Project. The Steering Committee has the ability both to initiate policy and to monitor the progress of the Study; the latter responsibility has figured most prominently in the Committee's deliberations during 1981. The Committee, comprising Mrs. Audrey Bevan of the N.S.W. Department of Education, Dr. Mina Golomb of the N.S.W. Health Commission, Mr. Bob Turner of the Smith Family (a charity organization), Professor Hugh Philp and Dr. Peter O'Brien, met on four occasions during the year.

INTRODUCTION

This, the first of the Annual Reports of the Longitudinal Study to the Bernard van Leer Foundation, is meant to give the reader both an appreciation of the processes adopted within the Study, and an insight into preliminary findings for the year, through a descriptive account of progress.

It is not intended to give exhaustive details or the results of final analyses; these are to be found[1] in the Technical Reports of the Longitudinal Study, or will be found in future writing[2].

Each member of the Research staff has contributed to the Report:

Ms. J. Belme reported the sections dealing with language, reading and locus of control;

Ms. A. Clark provided the account of the data management system and co-authored the section on family background;

Ms. K. Houghton reported upon the mathematics evaluation;

Ms. P. Webster produced the material concerning homework and co-authored the section on family background;

Dr. P. O'Brien provided the remainder and was responsible for editing the total report.

The structure of the Report reflects the timing of the year's events, working as it does from information with regard to families, the first data-gathering field exercise, through to the last field activity, the locus-of-control data, which is reported towards the end of the report.

BACKGROUND

The Mt Druitt Longitudinal Study is separate from, but complementary to, the earlier Mt Druitt Early Childhood Project which commenced under School of Education Macquarie University direction, in mid 1975[3]. The first group of children to experience a full year (or 36 weeks in term time) of daily attendance at the pre-schools, with specially designed and implemented programs intervening in the education of the Mt Druitt children, did so in 1977. It is the remaining children of this group, now in Grade Four, and children who joined them as they progressed through the early grades of primary school, who form one focus of the Mt Druitt Longitudinal Study which commenced in January 1981.

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1. e.g. "Children's views of some tasks encountered in the third grade", Milly Almy, et al.
2. e.g. "Mathematical evaluation in the Mt Druitt Longitudinal Study." K. Houghton, in preparation.
3. See the Annual Reports of the Mt Druitt Early Childhood Project.

Mt Druitt has changed since 1975: physical aspects of the housing development have improved; the average age of the population has increased, from six or less years to, about, twelve years of age; the community services have expanded, mostly as a result of the initiative of Mt Druitt people themselves; and, the population has increased to over 90,000 people. However, Mt Druitt remains disadvantaged in many of the same ways as applied at the earlier date.

The Mt Druitt population is more dependent upon welfare than is the Australian population generally; single-parent families are over-represented; adult unemployment runs at about twice the national average with one in eight without work; one in three of people under twenty-five has no work; and, the Mt Druitt children typically are less successful in school-related learning than are children elsewhere.

While the Mt Druitt Early Childhood Project had implemented special educational intervention in the Pre-school, Kindergarten and Grade One classes of five Mt Druitt schools, it remained conjecture whether or not the Mt Druitt children had benefitted in the longer term. The results of the Mt Druitt Early Childhood project were of such interest that it appeared imperative that the children be followed up, in a new project with descriptive rather than intervention goals, over a reasonable period. Hypotheses underlying the Mt Druitt Early Childhood Project, that early intervention with disadvantaged children would assist them to take greater advantage of their later, regular school experiences, had received some support. Additional follow up, in a new study monitoring the children's progress through the regular primary school, would not only provide later evidence with regard to such hypotheses but permit, at the same time, a study of important aspects of the children's development. Such a study would, in its own right, be of considerable significance, not only in Foundation terms, but in the sense of possible contributions to both the Australian and the broader educational scene. To the Foundation, the knowledge of the later careers of children experiencing a carefully defined and implemented pre-school experience, funded initially by the Foundation, could add insight regarding the impact of Foundation supported work upon the lives of children. Carefully designed longitudinal studies of children's development were rare in Australia. Longitudinal studies with careful description of educational program implementation and valid and reliable measurement of the characteristics of the children are uncommon in the international setting.

In early 1980, therefore, the Macquarie University School of Education approached the Bernard van Leer Foundation proposing a new study which, as one goal, would attempt to evaluate longer-term effects for the Mt Druitt children by following them, in a longitudinal fashion, throughout 1981, 1982 and 1983. It was suggested that, such a Longitudinal Study would:

(i) provide evidence of middle to long-term effects of pre-school and early grades' intervention with a group of Australian disadvantaged children;

(ii) influence educational policy and practice both in Australia and elsewhere;

(iii) add to the stock of knowledge of the relationships between educational programs and child development;

(iv) provide normative data, with regard to several characteristics, for Australian children; and

(v) afford additional insights into the effects of educational programs based upon different theoretical conceptualisations.

AIMS

In agreeing to support the Longitudinal Study, the Bernard van Leer Foundation identified the following aims:

a) to develop a data bank about the health, social, psychological and educational development of the children;

b) to determine whether the positive gains and differences in behaviour and achievement observed in Kindergarten and Year One were maintained throughout the primary school year; and

c) to examine whether observed changes in the community related to the infants' schools were maintained over the period of the Study.

GUIDELINES FOR SELECTION OF VARIABLES

While the aims identified broad categories of variables upon which the Longitudinal Study should focus, specific variables had not been proposed, Guidelines were adopted to assist in deciding which variables would be monitored. These guidelines are listed below:

1. It was important that the Study would capitalise upon the pre-existing data gathered within the Mt Druitt Early Childhood Project. Table 1 below lists the ability/achievement measures employed in monitoring the children's development in that Project.

TABLE 1

Ach/Abil. Measures employed in the Mt Druitt Early Childhood Project:

	1977		1978		1979	1980
	Pre	Post	Pre	Post	Post	Post
Mathematics:						
Conceptual Maths	+	+		+		
Circus Maths			+	+		
Numeracy					+	+
Conservation:						
Dimensional Language		+			+	
Reading:						
Pre-reading	+	+	+			
Murphy-Durrell				+		
Neale Analysis					+	
ACER Comprehension						+
Spelling:						
Spelling					+	
Schonell Spelling						+
Vocabulary:						
Circus	+	+	+			
P.P.V.T.				+	+	+
A.C.E.R.						+
Language:						
Imitation	+					
Comprehension	+					
Production	+					
Structure					+	
Social Knowledge:						
Circus				+	+	+

In addition, Locus-of-Control, as a motivatational attribute of the children, had received attention in 1977. The children's activities and behaviours had received attention in each year with the use of Preschool Observation Schedule ratings in 1977, the Kindergarten Rating Scale in 1978, the Teacher's Ratings of Year One Children's Behaviours in 1979, and the Personal Records of School Experience (PROSE) in each of the years 1977, 1978 and 1979. A thorough medical record had been made for each child in the earlier Project during 1977.

Clearly, this earlier work had established a firm base for evaluation of the cognitive achievement of the children during the Longitudinal Study. As well, there existed an introduction to the study of behavioural differences, although, as all the earlier behaviours measures had been reported for groups, it would not be possible to follow-up behavioural differences for individuals. What did not exist was a rich background to studies of the children's psychological, motivational or social-psychological development nor anything, other than anecdotal references, with regard to school community relationships.

While it was argued, in the development of the Mt Druitt Early Childhood Education Project, that the goals of the programs were not only cognitive it was inevitable that the concentration in evaluation had been upon cognitive measurement. After all, the Mt Druitt district had been identified as the location for the Project precisely because the Mt Druitt children lacked high level skills in reading, maths and language. Cognitive measurement is also easier. Despite careful and time-consuming attempts to develop measures of self-concept for the young Mt Druitt children, for example, the Early Childhood Project reported little confidence in the results of such measures.

Given that this was the situation at the commencement of the Mt Druitt Longitudinal Study, it was possible to make capital of it by continuing the concentration on cognitive measurement and emphasising the evaluation of school learning within the Study. It was fact, also, that both in the present climate in Australia, in which school standards are being debated throughout the community to the highest political levels, and in a situation where Mt Druitt youngsters may be missing out on employment opportunities because potential employers believe they lack basic skills, such an emphasis would be appropriate. This emphasis was to continue, of course, while behavioural observation would go on and efforts to better document the social, emotional and psychological development of the children would be made.

Unfortunately, there was little that could be done to revive the monitoring of school-community relationships as objective and consistent records did not exist. Historical reconstruction is possible, but it is time-consuming and costly, and it was believed that results of such efforts would not be sufficiently valid to warrant such attempts. A realistic decision to make a fresh start in this area was made, albeit with some reluctance.

2. Given the initial inclusion of a large group of children, over and above the original sample of the Early Childhood Project in the Longitudinal Study (see the later section regarding the composition of the sample) an emphasis upon extension of baseline measurement for all children was necessary. Reliance would need to be placed upon instruments/techniques which could be used effectively and efficiently to gather information from large numbers. This meant it would not be possible to focus, in the first instance at least, upon variables, such as personal attributions of the children, which required extensive

interviewing. Additionally, those variables which, for their measurement, required intensive analysis of data obtained from relatively few children could not be considered.

3. As staff time would be devoted largely to planning, training for observation, the gathering of data, data-analysis and writing little scope for development of instruments or evaluation techniques, an activity requiring intense application of time and expertise, would be possible. Priority in choice of variables was to be given, therefore, to those for which valid and reliable instruments (tests, surveys, or questionnaires) were available. This policy was also adopted as data obtained from Mt Druitt children could then be compared to that obtained from children elsewhere in Australia or abroad. Further, it was believed that instrument proliferation was of a lower order of priority given the aims of the Study.

4. The Longitudinal Study offered an opportunity to gather data which would promote comment on current models both of the effects of family environments (e.g Majoribanks, 1979) and of school learning (e.g. Harnischfeger and Wiley, 1978). Preference was given to variables which figured in such models, provided of course, that they were appropriate to the evaluation model adopted within the Longitudinal Study.

5. Thorough evaluation had been a key characteristic of the Mt Druitt Early Childhood Project, with the development of an excellent evaluation plan[4] and its implementation reasonably faithfully throughout the course of the Project. The Cooley and Lohnes' approach to educational evaluation, which underpinned the earlier evaluation plan, was believed to be particularly sound and was, therefore continued into the Mt Druitt Longitudinal Study.

THE VARIABLES

Application of the guidelines to the set of aims indicated the choice of the following variables for study in 1981:

(i)	Educational:	Reading Comprehension; Word Knowledge; Spelling; Written Expression; Maths Computation;
(ii)	Motivational:	Locus-of-Control;
(iii)	Social-Psychological:	Children's assessment of classroom environment.; Children's views of classroom tasks; Parental press for achievement; Language models of the home;

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4. See "A working evaluation document", S. Ball and J. Braithwaite, Mt Druitt Early Childhood Project.

		Activities of the family; Family attitude to education; Teacher attitudes to children; Teacher assessment of classroom environment;
(iv)	Environmental:	Parental education; Socio-economic status; Parental occupation;
(v)	Behavioural:	Teacher classroom management; Teacher instructional behaviours; Pupil classroom behaviours; Pupil disruption;
(vi)	Home-School Relationship:	Parent-school contacts; Family satisfaction; Homework.

While the list of variables is extensive (in fact, too many variables were included and the amount of analysis required has been too extensive), obvious gaps are present; no health data was to be obtained, pupil psychological development and home-school relationships were under-emphasized. Planning for 1982 will, however, ensure a more adequate treatment of these areas.

SOME PROBLEMS

1. The first problem has been introduced above in relation to the articulation of the two Mt Druitt studies. The Mt Druitt Early Childhood Project was an intervention and had not been conceived as an introduction to a longitudinal study. It did not need to and did not always obtain objective measurements of variables later felt to be important to the Longitudinal Study. While confident assertions could be made, for example, with regard to pre-school-community relationships in Project reports, as these were based on personal conversations, such reporting did not provide an adequate basis for later follow-up in the present Longitudinal Study.

Such a state of affairs is not to be thought characteristic of only the Mt Druitt studies. It is a fact that any project that extends over a lengthy time period will experience change, because, for example, new insights are gained from the on-going work of the project itself or the work of others stimulates re-definitions or additions. A longitudinal study aims to have impact in the future and it is not always possible to have prior knowledge of what will be seen as important years hence. The Mt Druitt Longitudinal Study was a new study, taking advantage of the fact that, for a considerable number of the children, previous information existed. In some senses this has restricted the range of characteristics that could be considered, but in other senses, it has added powerfully to the potential impact of the Longitudinal Study.

2. It was to be expected that, in any mobile society, such as exists in Australia, loss of subjects from the original sample would prove problematic. Many longitudinal studies have reported attrition as the most serious of all the problems which beset them. The earlier Mt Druitt Early Childhood Project had reported a loss of about 10% of children per annum. It was not expected that this rate would continue, for the high

unemployment and high interest rates of the early 1980's would, it was believed, restrict the movements of the Mt Druitt families. However, attrition did pose two problems: would the sample lose too many over the course of the Study, and, would those of the original sample who remained form a biased group, of the brightest, or of the lowest achievers, for example? Steps would need to be taken to counter both problems.

3. A third problem, common to any study of inter or intra personal change, was that of the equivalence of the measures used at different times of measurement. A Longitudinal Study aims to uncover effects which are validly attributable to changes in the subjects rather than to repeated testing-effects, or changes in the tests themselves, or in the observation context, or in the observer, or in the validity or reliability of the measuring device itself. To counteract these problems care in choice of measuring instruments was vital, training of the observers important, reliability checks of data transformation significant, and maximally motivating the children on each testing occasion of the essence. All of this would, of course, take time, a most valuable commodity in the context of the Longitudinal Study.

4. It was time, itself, which presented, and continues to present, the most often felt problem. Perhaps the Longitudinal Study should not have gathered any data in the first six months but devoted all the time and talents available to planning, rather than making an early move into the field as it did. The choice to commence early data collection was based upon the fact that several of the research team were already familiar with Mt Druitt and with the variables monitored in the earlier Project. However, the team has been 'on the run' ever since with the result that analyses of 1981 data are continuing well into 1982, 'writing-up' of results has not occurred in several areas, and periods for consolidation and forward planning have to be 'stolen' from other, just as pressing, obligations. With hindsight it is suggested that extensive planning which would ensure more efficient and effective later stages in a lengthy study, is of absolute priority in the first quarter, or so, of a study's time period.

LONGITUDINAL STUDY SAMPLE

With the commencement of the Mt Druitt Longitudinal Study the emphasis upon monitoring differences in child effects associated with different intervention programs, that had characterised the Mt Druitt Early Childhood Project, was broadened in order to monitor later differences associated with attendance or non-attendance at pre-school. As well the aims of the Study indicated that normative data for Australian children might be sought. The sample of children remaining from the Mt Druitt Early Childhood Project was not sufficiently representative nor large enough to permit either proper monitoring of differences, or the gathering of normative information. It was clear that the Longitudinal Study would need a large sample. This was achieved initially by including all Third Grade children in the five Mt Druitt schools but, to ensure both the representation of all ability levels within the sample and that information was drawn from a broader cross-section than a disadvantaged group only, it was also necessary to obtain information from children located outside the Mt Druitt area.

It was decided to maximise the results of the Study by the inclusion of a relatively large group of children who were clearly not disadvantaged. The information obtained from this group would provide normative data and help to define disadvantage for Australian children. Children from Mosman and Leonay, both areas

demonstrably different to Mt Druitt, particularly in socio-economic terms, were included in order to achieve that purpose.

It was also suspected that the geographical location of Mt Druitt, some thirty-five kilometres from the Sydney business centre, was in itself responsible for some of the disadvantage Mt Druitt children suffered. In order to test guesses that this was so, children from near-city locations were included in the Study. Mosman provided near-city, higher socio-economic status level children. Daceyville, another near-city school, provided both children from homes rented from the N.S.W. Housing Commission, like many homes of Mt Druitt children, and a largish group of children from a non-anglo/Australian background. The addition of Leonay, a higher socio-economic status level, outer-city location, completed the sample.

Of additional benefit was the fact that a number of the Mosman and Daceyville children had been tested in 1977 by the Project Director, in relation to aspects of their psychological development, providing some longitudinal data for these groups.

The final sample comprised:

Mt Druitt children: disadvantaged, depressed achievement scores, distant city centre:

Leonay children: no disadvantage, high achievement scores; distant city centre:

Mosman children: mostly not disadvantaged, higher to high achievement levels, near city centre:

Daceyville: some disadvantaged, achievement levels unknown, near city centre.

Table 2 overleaf sets out the exact numbers within these groups, and further breaks the sample down to show pre-school attendance and inclusion in the core sample of the 1977 group of the Mt Druitt Early Childhood Project.

BREAKDOWN OF 1981 SAMPLE

SCHOOLS IN 1981

			Dawson	Madang	Mt Druitt	Whalan	Bidwill	Mosman	Lecnay	Daceyville	TOTAL
			(27)	(15)	(21)	(31)	(1)	(0)	(0)	(0)	
	* 77 Final		21	11	18	16	1	0	0	0	67
THREE YEARS	Not in 77 final	Preschool 76	0	0	0	3	0	0	0	0	3
INTERVENTION		Preschool 77	6	4	3	12	0	0	0	0	25
(95)											
			(19)	(5)	(0)	13)	(13)	(0)	(0)	(0)	
TWO YEARS		Preschool 77	0	0	0	0	1	0	0	0	1
	* 77 Final	Control A	2	0	0	0	2	0	0	0	4
INTERVENTION		Preschool 76	0	0	0	0	0	0	0	0	0
	Not in 77 Final	Preschool 77	0	0	0	0	1	0	0	0	1
(49)		Preschool other than exp.	2	0	0	4	1	0	0	0	7
		No Pre-school	14	5	0	9	8	0	0	0	36
			(15)	(20)	(19)	(32)	(38)	(0)	(1)	(0)	
		Preschool 77	3	7	6	9	24	0	0	0	49
	77 Final	Control A	0	0	0	0	1	0	0	0	1
ONE YEAR		Preschool 76	6	6	2	4	3	0	0	0	21
INTERVENTION	Not in final	Preschool 77	3	5	10	12	9	0	1	0	40
		Preschool other than the exp.	1	0	0	2	0	0	0	0	3
(125)		No preschool	2	2	1	5	1	0	0	0	11
			(25)	(15)	(18)	(29)	(138)	(98)	(55)	(53)	
NO		Preschool other than Experi-mental									
INTERVENTION			7	4	2	8	37	65	41	18	202
		No preschool	18	11	15	21	101	13	14	35	223
(431)		Control A	0	0	1	0	0	0	0	0	1
Missing data re Preschool experience (213)			15	10	4	17	64	19	23	32	213
TOTAL			100	65	62	122	254	146	79	95	913

TABLE 2

DATA MANAGEMENT SYSTEM

All the data collected during the four years of operation of the Mt Druitt Early Childhood Project was to be maintained and expanded over at least three further years by this Study.

The inherited data, for the most part, was stored as sets of raw data card images on magnetic tape although some integrated data sets, in which several items of data were present for each child, had also been created along the way, in order to facilitate the analyses pertaining to specific research questions. Operation of integrated data sets in this ad hoc manner, whilst time consuming, remained feasible in the Mt Druitt Early Childhood Project only because the actual number of cases in the sample was small enough (attrition had reduced the numbers to two hundred and fifty nine by the end of 1980) and because the majority of analyses only required the use of one set of data at a time.

The advent of the longitudinal study immediately shifted the main analytic questions to ones requiring that all the information pertaining to an individual child over a period of at least seven years, if not longer, must be simultaneously available. It was imperative that all the existing data be drawn together and organised in such a way that all the information about a given child would be stored together and new information could readily be added as it was collected over the next three years.

Given the experience of attrition rates of up to 14% per annum in the Mt Druitt Early Childhood Project, the decision was made to maximise the sample in 1981 to include all the children in Year Three at each of the eight schools in which the Mt Druitt Longitudinal Study was operating, giving a total sample size of 1186. This figure includes all children from 1977 onwards about whom we have information on file.

Nie et al's (1975) Statistical Package for the Social Sciences (SPSS) contains good data management facilities which were designed specifically to meet the needs of empirical social researchers. The system is relatively easily accessible to users with no prior computer experience and is fully documented. For a study spanning several years, staff changes are to be expected and thus the advantages of using SPSS are clear. The system includes a large number of general housekeeping routines for the management, manipulation and modification of data files. The decision was made to use SPSS for data management purposes and for the majority of statistical analyses as well.

SPSS requires certain features of the raw data to be entered into its own "System Files". The most difficult requirement, in terms of the Mt Druitt data, is that, once the system file has been created from the first batch of raw data, all subsequent raw input data files must contain an entry for each existing case in the file arranged in the same sequential order. All of the Mt Druitt data sets contain entries for a subset only of the total sample either by design or default, e.g. children leave the school altogether, are absent when testing is in progress, or are not included in a specially selected subgroup to be given a particular test.

"Tailor made" cobol programs were therefore written to prepare the required raw data input files from the preliminary raw data files which contain only the information as entered from questionnaires, tests, observations, etc.

Each child has a five digit identification number and each data item has a record identification number. A Coding Schedule is maintained which fully documents the contents of each record.

The data preparation programs pinpoint all invalid child and record identification numbers in any data set to facilitate correction of errors, and insert "skeleton entries" (child and record ID's only, the remainder left blank) for all cases for which no "real" data exists in that particular set. These blank entries are simply required for accurate entry of the complete set into the SPSS system file, but will, of course, be correctly interpreted by the system as "missing data".

The designing of the system, in consultation with a Systems Analyst and a Computer Programmer, and working through all of the Mt Druitt Early Childhood Project data to prepare it for input to the system required a considerable period of time during 1981. Now these stages are completed, however, all future additions of data will be handled with relative ease and any desired subset of cases and/or variables will be immediately accessible.

The documentation describing the structure and operation of the system will minimise problems of staff changes and enable usage by a larger number of people than was previously possible.

The program files, appropriately prepared raw data input files, and the SPSS system Masterfile are stored on magnetic tape in duplicate.

FAMILY QUESTIONNAIRE

The earlier Mt Druitt Early Childhood Project (Braithwaite, 1972), had gathered information regarding fourteen family background characteristics of children forming the experimental and control core groups. This information included father's occupation, reasons for father's non-employment, mother's occupation and reasons for non-employment, number of children and position in family, parent's education, medical problems, birth history, languages spoken in the home and the presence of heritable defects in family history.

Unfortunately, this information lacked discriminating power with respect to the members of what appeared to be an extremely homogeneous group and did not help to explain the variance recorded on measures of school achievement.

This homogeneity, added to the out-of-date nature of some of the items, (father's occupation given in 1977 could well have changed by 1981,for example), indicated the desirability of collecting a larger body of finer-grained information with regard to all families entering the Mt Druitt Longitudinal Study samples if variation within the sample was to be described.

Marjoribanks' (1979) 'Family Environment Schedule', designed for use with Australian families, but also used to collect data from a large sample of Canadian and British families, appeared to meet many of our requirements. It was a structured interview schedule which provided general information about a family, parental aspirations for the child, parents' knowledge of the child's educational progress, family involvement in educational activities, press for independence, value orientations, parents' aspirations for themselves and the concern in the family for the use of language.

The Parental Interview Form designed by the National Children's Bureau, for use in the first follow-up Study in 1965, of the 17,000 children included in the 1958 British Perinatal Mortality Survey, was also reviewed. This questionnaire, completed during home visits by health visitors, provided information on the size of the family, the parents' occupation and educational experiences, the type, tenure and size of the family accommodation and its facilities, as well as a detailed medical history of each child. In addition, the structured interview reported by Osterreith et al (1977), in their Belgian studies of socio-culturally handicapped infants and pre-schoolers, also included questions designed to elicit information regarding family demographics and background.

Each of the interview schedules reviewed above, was drawn upon and adapted in the designing of the Mt Druitt Longitudinal Study Interview which included questions with regard to family history, parents' education and employment, family involvement in educational activities including frequency of contact and satisfaction with the child's school, parental wishes and expectations for the child's education and employment, child's TV viewing habits, child's out of school activities and interest in reading, and details of home size and home ownership.

It was intended initially that the questions would be asked by a trained interviewer, either in the interviewee's own home or at the child's school, whichever the interviewee chose. Seven interviewers were trained, but after approximately three weeks in the field, it became clear that the Study was not going to be able to meet the costs, in terms of time as well as money, of collecting information from the eight hundred to nine hundred families in the sample, by means of a personal interview. Four of the seven interviewers were full time members of the research team and, therefore, also had responsibility for designing other data collection activities planned for 1981.

A compromise was accepted. The interview schedule was redesigned as a questionnaire to be filled in by either or both parents and returned in a sealed envelope to the child's class teacher. The majority of questions were presented as multiple-choice, tick-the-box type items; the already completed interviews were invaluable in selecting the choices to include for each item. This format was essential to minimise the difficulties parents with limited literacy skills might encounter in filling in their answers. The final Questionnaire is given in Appendix A.

The response rate was encouraging and was improved even further by a follow-up letter sent to all families who had not responded six weeks after the questionnaire had been sent home. Perhaps the stamped addressed return envelope sent with this letter prompted the additional returns. A Greek-speaking interviewer visited each of the thirty-four Greek/Australian families, many of whom were known not to speak English well, that were in the sample at one of our eight schools and helped these parents with the completion of the questionnaire.

The overall response rate was 72.5% (662 completed forms) and the rates for each school are shown in Table 3.

TABLE 3

Response Rates

		N	% Agreed	% Refused	% No Response
Mt Druitt Schools	School 1	100	65	25	10
	School 2	65	77	5	18
	School 3	62	81	3	16
	School 4	122	81	0	15
	School 5	254	72	10	18
Contrast schools	School 6	146	68	5	27
	School 7	79	75	5	20
	School 8	85	67	6	27

It may be useful for other projects to note the manpower required for mounting a large scale, detailed survey of families, as we experienced it. The designing (particularly the redesign from interview to questionnaire), administration, coding and related clerical duties occupied one staff member for ten months. This included the data analysis to the stage of the basic descriptive statistics reported below. The subsequent development of more sophisticated indices represents additional time and these analyses are still in progress.

Because there were eighty-five different variables, a selection only of simple descriptive variables has been included in this report. For the purpose of reporting, the schools have been clustered into two groups consisting of all the Mt Druitt schools and the contrast schools. The percentage responses of the total sample have also been included in the tables.

When looking at global differences, whether a child comes from a single parent family, or whether both parents are present may be of interest; hypothetically family type may be consistently related to other, including educational, variables.

TABLE 4

Family Type

	Mt Druitt Schools	Contrast Schools	All Schools
% Single Parent Families	22	11	18
% Other	78	89	82

As shown in Table 4, 22% of all the families in all the Mt Druitt schools who responded to the Questionnaire were single parent families. All except one of the single parent families has a single female parent.

TABLE 5

Nature of Female Parents' Work

	Mt Druitt Schools (percentages)	Contrast Schools percentages)	All Schools (percentages)
Full time (F/T)	19.0	22.0	20.0
Part-time (P/T)	7.0	30.0	16.0
Non employed	0.2	1.0	0.5
Home Duties	73.0	47.0	64.0

From Table 5, it can be seen that the percentage of mothers in full-time work varies very little across all schools. However, there is a significant difference between the relatively low percentage of mothers in the Mt Druitt area who have part-time work when compared with the much higher rate of part-time employment by mothers in the contrast schools. While there may be many explanations for this difference, (e.g. lack of job opportunities in the Mt Druitt area, lack of child minding facilities or lack of qualifications in the population to name but a few), this low rate of part-time employment, together with the large percentage of single female parents and the large percentage of females on low income (see Table 6 below) begin to paint a grim picture for adult females in the Mt Druitt area.

TABLE 6

Source of Female Income

	Mt Druitt Schools	Contrast Schools	All Schools
Wage (P/T and F/T)	27%	52%	35%
Pension unemployment sickness benefits	20%	2%	14%
No separate income	53%	46%	51%

While re-emphasising that our contrast schools cannot claim to be representative of Australia in general, it is clear that females in the Mt Druitt area depend to a much greater degree than do women elsewhere on social security benefits.

TABLE 7

Nature of Males' Work

	Mt Druitt Schools (percentages)	Contrast Schools (percentages)	All Schools (percentages)
Full time (F/T)	86.0	97.0	90.0
Part time (P/T)	0.6	1.5	0.4
Not employed	13.0	0.5	9.2
Home Duties	0.3	0.5	0.4

Of the families who replied to work questions on the Questionnaire, thirteen percent (13%) of Mt Druitt fathers were reported as not employed while, in the contrast schools, one half of one percent (0.5%) of the fathers were reported as not employed. When considering information from Table 7 and 8 alongside the fact that 22% of the families were single parent families, it could mean that more than one third of Mt Druitt families who responded exist on unemployment benefits, sickness benefits or deserted mother's pensions.

TABLE 8

Source of Males' Income

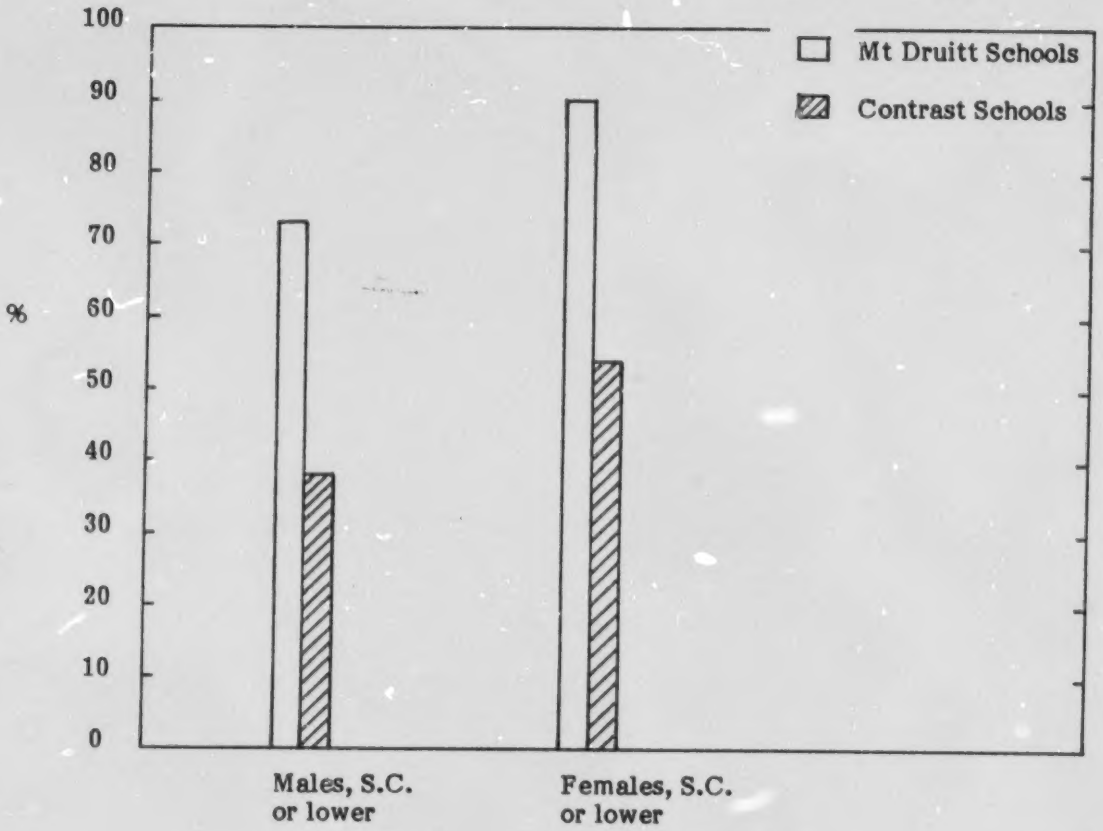
	Mt Druitt Schools (percentages)	Contrast Schools (percentages)	All Schools (percentages)
Wage	86.0	97.0	90.0
Pensions, Unemployment benefits, Sickness benefits	13.0	1.5	9.2
No separate Income	0.3	0.5	0.4

At the time of data collection figures published by the Australian Bureau of Statistics showed that the national unemployment rate, i.e. the number of people who were registered as looking for either part-time or full-time work, was about 6%. Although our category "not employed" was not the same as that defined by the Bureau of Statistics, it gives an indication that the rate of male unemployment in the Mt Druitt area was about double the national rate.

Parents were asked for their own educational history. In New South Wales, the lowest level of formal school qualification is the School Certificate.

FIGURE 1

Percentages of Males And Females Who Have The Minimum Formal School Qualification Or Lower



It can be seen from Figure 1 that Mt Druitt males and females have significantly less education than do the Contrast group males and females. A difference of this size is of even greater significance, when the fact that 11% of the contrast group consisted of Greek/Australian males (who had only primary education, which was considered to be the normal school leaving requirement in Greece for males at that period of time) is taken into account.

Marjoribanks (1975) found that the country-of-origin of his sample of South Australian parents was consistently related to school performance of the children.

TABLE 9

Percentage of Parents Born in a Non-English Speaking Country

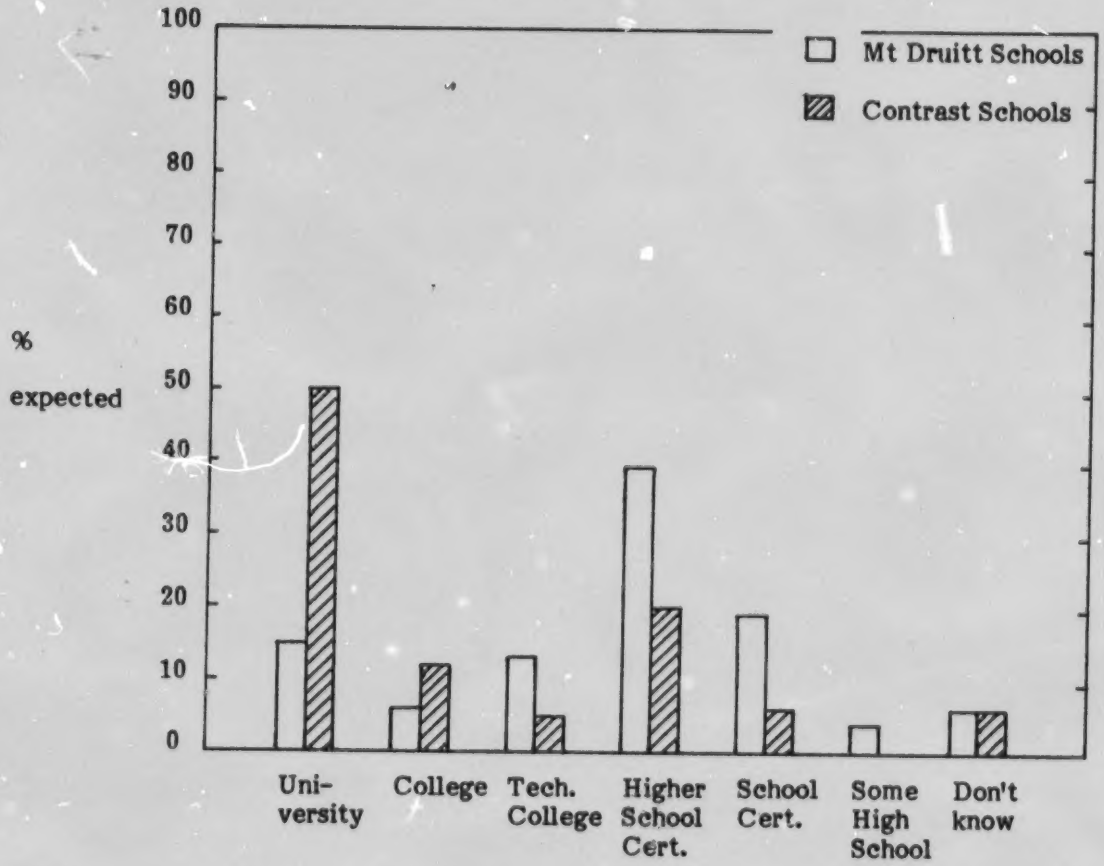
	Mt Druitt Schools	Contrast Schools	All Schools
Male	16	26	19
Female	13	21	15

The percentage of parents born in a non-English speaking country in Mt Druitt Schools is less than the contrast group and indeed less than the population in general. Australia has doubled its population since 1945 and, it is reported that, one-third of the present Australian population was either not born in Australia or born in Australia to parents who came from overseas. It is claimed that one in five present Australians was either born in a non-english speaking country or is the Australian born child of parents originating in a non-english speaking country overseas. Why Mt Druitt has not attracted a proportion of its population conforming to these demographic statistics is not known. The ability of the non-english speaking migrant to handle the extensive bureaucratic requirements, all conducted in english, of qualifying for a Housing Commission home, of the different motivational patterns of different ethnic groups, or the lack of attraction of Mt Druitt, having little community cohesion and none reflecting a non-Australian ethnic background, may be hypothesised as amongst the causes.

Parental expectations of their children have been cited as explanations for differences in school achievement.The level of education which parents expected their children (both male and female) to reach is shown in Figure 2.

FIGURE 2

Level Of Education Expected by Parents

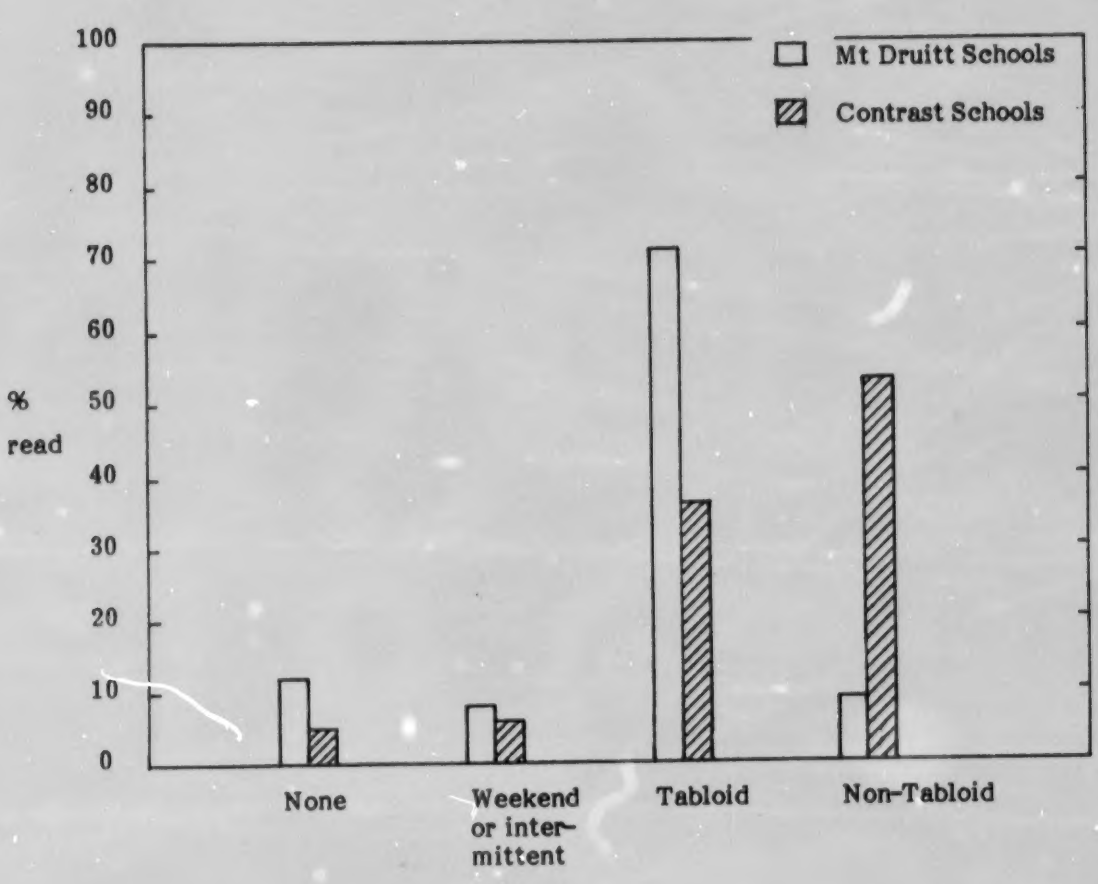


The lowest formal school qualification, the School Certificate, does not attract the majority of parents who, whether located in Mt Druitt or not, desire "better" things for their children. Documenting the match between these expectations and later reality will be of great interest.

In Australia, daily newspapers typically fall into two categories, tabloid and non-tabloid. According to Lyons & Tanner (1972) who derived a measure with regard to a combination of attitudes, expressed interest levels and readability, the tabloids require about Year Six level, while the attitudes, interest level and readability of the non-tabloids require about a Year Eight standard of education.

FIGURE 3

Newspapers Read



As Figure 3 shows, 71% of homes in the Mt Druitt area have access to only tabloid newspapers and only 7% have access to the higher reading level non-tabloid newspapers, while in the contrast schools, 53% of homes have access to the non-tabloid newspapers and 36% of homes have access to only tabloid newspapers.

Parents were asked how much television their Year Three child watched before and after school:

FIGURE 4

Television Watched Before School

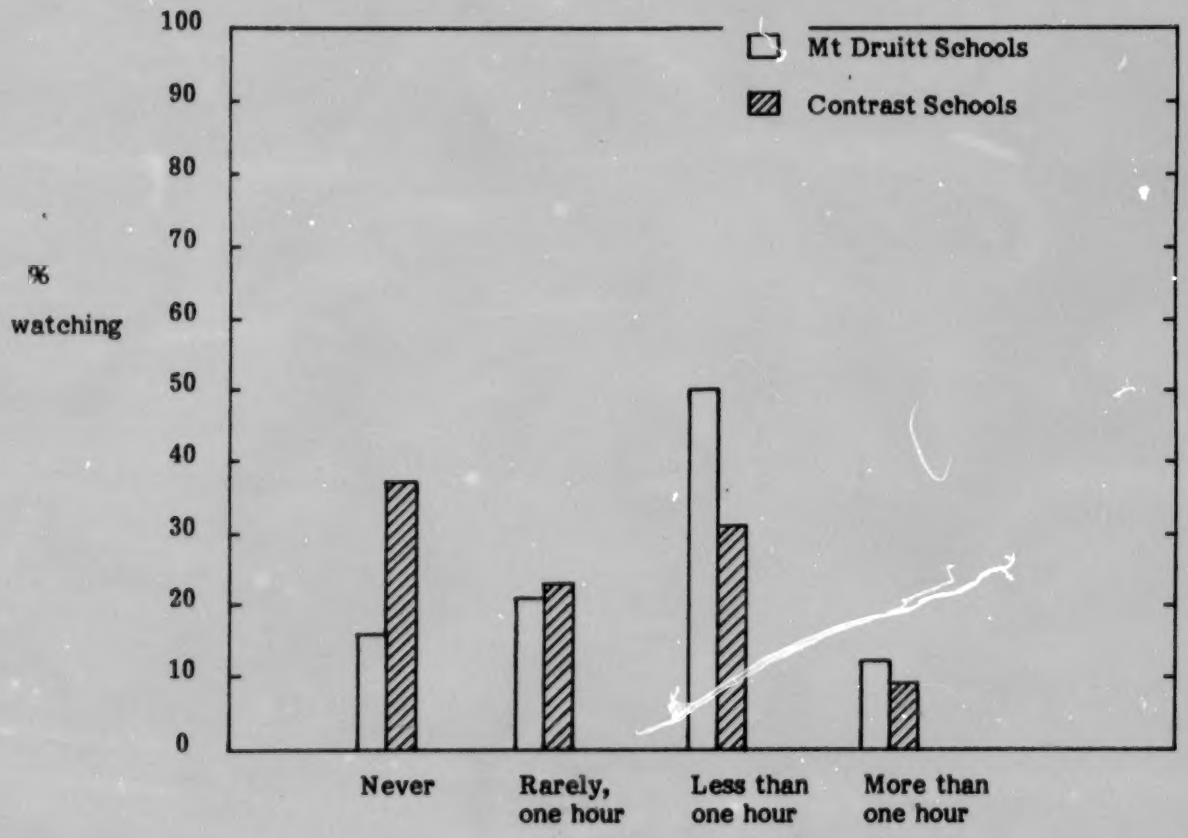
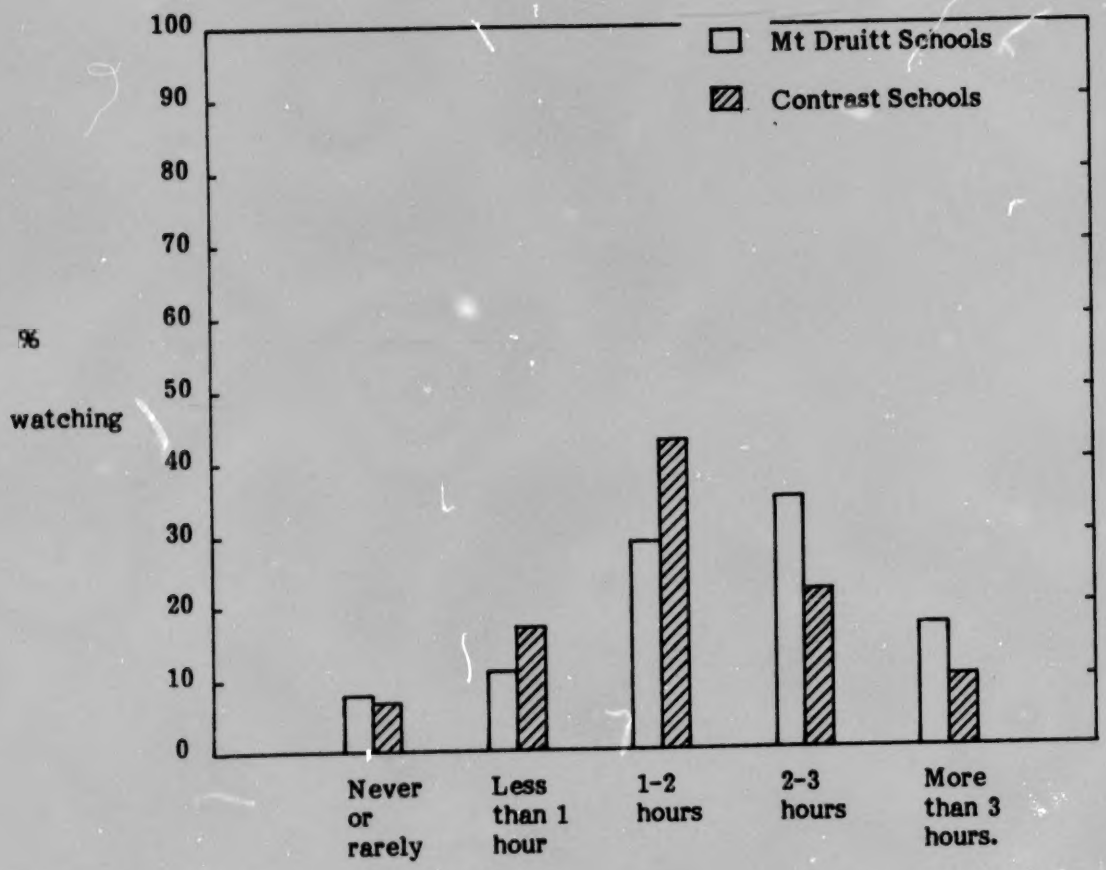


FIGURE 5

Television Watched After School



Although the overall television viewing reported was not excessively high, it can be seen from Figures 4 and 5 that children in the Mt Druitt schools watch television more often and for longer periods than do children in the contrast school.

The simple descriptive statistics illustrated above will be useful for presenting the results of the questionnaire to teachers and parents.

Some exploratory analyses have also been performed to prepare the data for use in multivariate analyses investigating the relationships amongst home background, behaviour and experiences in the classroom, and school achievement.

Transformations of some of the data were necessary to provide a set of variables which are at least at the ordinal level (as required for use in multivariate analyses) and minimise the number of cases with data missing on any variable. The latter was

of particular concern because many families with a single female parent (including divorced, separated, widowed) had not answered questions concerning the child's father. For many statistical purposes, a missing value for even one variable in a set will result in that case being dropped altogether.

The following transformation of the responses given to two questions relating to whether the child is or has been read to by father will serve to illustrate the process.

TABLE 10

Original Questions

Percentage of Respondents For Each Response To Two Questions Regarding Father Reading to Child.

Responses	Is the child read to by father now? % of sample	Was the child read to by father when younger? % of sample
Yes	34	58
No	52	30
Do not know	4	4
Not applicable*	7	5
No response	3	3

* not applicable - father not present.

The new ordinal variable constructed from these two questions gives the following distribution of responses:

TABLE 11

Percentage of Respondents Receiving Each Value for Constructed Variable

'Score'	Meaning	% of Sample
1	Read to by father both now and when younger.	30
2	Read to by father either now or when younger.	32
3	Not read to by father	31
4	No response	7

Of the eighty-five variables available in the original untransformed data, ten

were amalgamated into four new variables in a manner similar to that described above for 'father reading to child'. Eleven more variables were selected because they each correlated highly with a subset of the remaining unselected variables, i.e. each could be seen to be representative of the responses to several questions. The resulting set of fifteen "Key variables" will be used to compare Mt Druitt families with those in our contrast sample. They will also be used to cluster families with similar characteristics regardless of geographic location.

The 'key variables' are:-

1. School attended by child.
2. Length of time child has been in present family structure.
3. Number of guardianship changes experienced by child.
4. Father employed full time, part-time, or not employed.
5. Father's level of education.
6. Size of nuclear family.
7. Length of residence of parents in Australia.
8. Child read to by mother now.
9. Amount of TV child views before school.
10. Mother helps child with homework.
11. Father helps child with homework.
12. Ethnicity of the family.
13. Read to by father.
14. Family expectation scale.
15. Discrepancy between parental wishes and expectations for child's education and future employment.

It is anticipated that group membership based on 'like family characteristics' will be strongly related to school achievement.

MATHEMATICS ACHIEVEMENT

The Maths measure was intended to describe efficiently the mathematics skills of each individual in the Study's large and academically diverse sample. Hence, the measure was designed to be:

- appropriate for descriptive purposes;
- feasible for a research team of six to use with 900 (approx) children spread across eight different school sites, within a three week period;
- valid as an achievement measure of the discrepant curricula experienced by children at different sites and at different points along the ability continuum.

The measure can be defined as a one hundred item pencil and paper test of children's skills at performing operations on counting numbers. The Test was constructed in a domain (or criterion) referenced way. The domain can be defined as those operations on counting numbers specified by the N.S.W. Department of Education's Curriculum for Primary Schools as appropriate for Kindergarten to Year 3 students. It comprises nineteen separately identified skills (or objectives) to be acquired by children. including skills in the addition, multiplication, and subtraction of counting numbers. Approximately five items were generated for each objective to

create the one hundred item Test. (The Test's specifications are included in the detailed technical report of this event.) Each test item is a computational task involving the completion of a number sentence. To minimise fatigue, the Test was split into four parts for administration on four consecutive mornings.

Project staff administered the four subtests singly on the four consecutive mornings at each site, except in two cases where the time schedule was halved in accordance with site constraints. No test required verbal reading skills and testees were free to use concrete materials as a computational aid. No time limit was imposed, although forty minutes was judged adequate (on the basis of trials).

The data were analysed using the following variables:

1) dependent variables - scores for the three separate operations (multiplication, addition and subtraction) and the concepts items, and an overall score for the Test.

2) independent variables - whole sample, subsamples (Mt Druitt subjects vs. Contrast subjects), site/school, class, gender and individual.

The distribution of achievement scores for the nine hundred children in the Study's sample is negatively skewed in the case of the addition, subtraction and multiplication subtests. This negative skew is large and indicates a very small proportion of children at the lower end of the achievement range in mathematics.

A large number of children achieved scores of 90% or more on any one subtest and can be considered to have demonstrated mastery in that subtest. The analysis revealed that 84% of the sample had mastered the measured addition skills domain of the Kindergarten to Year 3 curriculum. A smaller proportion, 71.6%, had mastered the multiplication skills domain, and only one half of the sample had mastered the subtraction skills domain.

One explanation for the differential mastery among domains could lie in the differential instructional emphasis given these three domains during the Infants' grades. The addition operation is usually the first operation in which children receive instruction and retains its instructional emphasis throughout the Infants' grades. Multiplication, although the latest operation introduced to children, is an extension of the addition operation and, by Year Three involves little more than doubling. Subtraction, on the other hand, is the inverse of addition, a separate and apparently more difficult concept to grasp.

An item analysis yielded an index of difficulty for each item and for each objective. This index refers to the fraction of the total sample which correctly answered that test item. Generally, there was little variation in difficulty among items within any objective, and among objectives within any subtest. This makes it possible to confirm the homogeneity of each subtest, but impossible to suggest a hierarchy of skills for any domain.

The variation of difficulty indices between any two subtests was greater than within any subtest with the addition test on which more children displayed mastery, having largest difficulty indices and subtraction having smallest".

Another major finding concerns the varying difficulty of different number sentence formats. Number sentences which equated two operations on counting

numbers (e.g. 7 + 4 = 4 + 7), or in which the missing value was the first component encountered when reading from left to right, were found more difficult than others. One possible explanation for this greater difficulty is the lack of familiarity with, or exposure to, computational tasks where the missing value is neither a sum, difference or product, and/or the appropriate order of dealing with numbers does not follow a set left to right direction. Two common error patterns emerged: the first in which the missing value, whether addend, subtrahend or minuend was treated invariably either as a sum or difference respectively; and a second, in which the meaning of the equals sign was ignored and the operation sign applied to the first two numbers encountered.

An alternative explanation for the differential mastery of domains may lie in this being due to an inflexibility characteristic of a stage of cognitive development or behavioural response (Collis & Biggs 1979). According to Collis' and Biggs' schema for describing stages of behavioural response in maths, the error patterns which emerged in the Mt Druitt Maths Test can be described as typical uni structural responses. These responses are characterised by '...a single direct relationship to concretely (either physically or iconically) available criteria.' At this level of response children can solve algorisms with no more than two elements connected by one operation and this combination must be actually replaced by a third element belonging to the same set (e.g. 3 + 5 = 8) (Collis & Biggs, 1979:77).

The results of the subsample comprising Mt Druitt students were compared with those of the subsample comprising students in the Contrast schools. The main contrast found between the two subsamples was that achievement was more variable in the Mt Druitt subsample. The scores of this subsample show a broader range of maths achievement than those of the Contrast subsample. The same maximum scores were achieved by children at the high achievement end of the range in both subsamples. However, the minimum scores achieved by the Mt Druitt sample were lower than those achieved by the Contrast group on all tests. This variability introduces complexity in attempts to generalise about maths achievement in Mt Druitt.

The percentage of masters always exceeded 75% in the case of the Contrast subsample and was as high as 95% for one domain. In contrast, the percentage of masters in the Mt Druitt subsample exceeded 75% only in the case of addition. It should be noted that the contrast provided by the Contrast Subsample cannot be generalised to the population of New South Wales Year Three school children.

Achievement profile differences between sites within the Mt Druitt or the Contrast subsample were smaller than achievement profile differences between subsamples. The lowest achieving school was a Mt Druitt school. The highest a Contrast school. The contrast between these two schools is very great. No ready explanation is available for the Mt Druitt school's relatively low achievement in the Mt Druitt subsample and the Contrast school's relatively high achievement in the Contrast subsample.

Each class teacher was provided with a description of the strengths and weaknesses of his/her class as a whole and a detailed diagnosis of the skills of each individual. The individual profile reports on children proved helpful as feedback to schools and resulted in at least two corrections to class placement. They also proved a successful public relations event.

The gender differences in achievement on the Maths Test were explored. The finding that there were no consistent sex differences in performance on the four

subtests as a whole is consistent with the findings of previous research in Australia (Dunkley 1977; Bourke & Keeves, 1977).

CHILDREN'S VIEWS OF SOME THIRD GRADE TASKS

Professor Almy was interested in the ways that children view and understand the tasks with which they are confronted during the school day and how the children function in these tasks. Grade Three was a particularly interesting time to talk with the children about these interests for, in New South Wales, this is a transitional year from the Infants' school into the Primary. The children view their work as harder but they may be entering a period of development when peer interests become more important to them. Professor Almy speculated that the children's movement into Grade Three could mark the beginning of disaffection with schooling and so devised an appropriate interview schedule and carried out a twenty or thirty minute interview with sixty-four children.

While the results of the interviews with the children have been reported at length[5], the investigation was, in reality, a pilot, serving both to trial the method with children of the Mt Druitt sample, and to trial the interview focus stories for possible use in later years of the Study. Eight children were randomly selected from each of the eight schools in the Study, although half the children were boys and half were girls. As the interview was conducted, Professor Almy made both a handwritten and a taped record of the proceedings. It is reported that rapport was easily established; the children were evidently keen to take part, attended carefully to the stories and answered spontaneously, often at length.

The stories around which the interview was structured described violations of class rules, hard and easy mathematics exercises, attention to task, learning strategies, concrete approaches to mathematics learning, the world of adult work and the purpose of tests. Questions asked of the children with regard to these stories permitted Professor Almy to probe for children's understanding of the necessity for rules, fairness, possible strategies for 'finding out', work preferences, differences in individual ability, learning strategies in spelling tasks, and strategies for test taking. The records of the interviews were analysed and coded using a category system devised by Professor Almy. High levels of inter-coder reliability were established for this coding system by comparing coding of common materials by both a postgraduate student familiar with the coding system and Professor Almy.

The children's responses indicated that classroom tasks were viewed by them as 'givens', not something to question or to reflect upon. The predominant view, that of conformity, was shared by most pupils, whether they attended Mt Druitt schools or not. Only four of sixty-two contrasts of responses by school were significant so that what emerged from the interviews was a view common to third graders. Several of the findings are featured below; there is insufficient space to feature all.

Only one child did not have a classroom friend while only four children suggested

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5. See, "Children's views of some tasks encountered in the third class", Milly Almy. Mt Druitt Longitudinal Study.

that friends might engage in teacher disliked activities in order to have fun with their classroom friends. Eighty-five percent of the children thought teachers wanted children to enjoy themselves and, although 50.9% indicated that children could not work hard in the classroom all the time, suggested that children just "get used to working hard all the time" (29.7%), or could do nothing about it in classrooms where work was constantly imposed (17.2%). Only 23.4% thought they would chat or play in class.

Several of the stories provided an opportunity to appraise children's awareness of certain aspects of learning. In response to the first of these stories, which indicated that class assigned work may be too hard for some while too easy for others, most children viewed the teacher as the resolution to the problem although 79.7% believed that mothers might help children having difficulty and 56.3% indicated other children might help. Responses to a second story indicated, however, that perhaps one third only are aware of aptitude or ability as an aspect of classroom learning, while many children did not seem able to differentiate between performance that leads to the correct solution of a problem and performance that conforms to deportment standards, such as 'paying attention'. The children seem to confuse good work and good behaviour.

An additional story was an approximation of a Piagetian class inclusion problem. One third to one half of the children did not provide an answer indicating they had attained an habitual ability to function in a concrete, rather than, perceptual mode. Such a finding has clear implications for the teaching that would be most effective with such third graders.

A fourth story, in this series, which introduced the children to the notion of learning through manipulation of concrete materials, elicited a majority response which suggested that such an approach would not aid learning. The children suggested that "once in the head, always in the head", or that concrete manipulation would be forgotten, or not lead to thinking. Altogether, 75% of the children indicated they would rather not be in a class which used concrete materials in learning mathematics.

Two stories were followed by probing questions which asked children to describe how they proceed with a spelling task or a reading or maths test. While at least five different strategies for learning spelling lists might have been suggested, in response to the 'spelling list' story, nineteen children did not mention a single strategy; twenty-one children suggested one, eighteen mentioned two, and two children suggested three strategies. In response to the story which introduced test taking, fifty percent of the children gave spontaneous responses which indicated that they did not differentiate tests from other learning activities. However, when question probes and interviewer suggestions were made, 89.9% of the children agreed that tests would help the teacher help the children. Of great interest here is the fact that only one child suggested that, to ensure that mistakes were avoided in a reading comprehension test, the answer given should correspond to what had been read while only twenty-four children (37.5%) indicated that answers to reading test questions lay in the material that had been read. The children's answers with regard to these two stories gives rise to questions as to the strategies which might be used to make children more aware of their own and other learning and test-taking strategies.

Children's views concerning work were elicited by several of the stories. 43.9% of the children thought children preferred hard work, 34.4% thought easy work should be mixed with hard in balance, while only 20.3% thought easy work was preferred. Not all the children agreed that something of the adult world of work should be being

learnt in Third. While 50% thought Third was appropriate for studying work, 42.4% thought such study should begin later 'when there would be time." It did not seem to be at all clear to the children, however, how the world of school and the world of work were connected.

The discussions of work led easily into questions about the adult work the children thought they would be doing; only seven did not know, while the remainder readily specified an occupation. A striking difference between the status levels of the occupations chosen by the Mt Druitt children, 26.3% of whom chose in the third status level or above, and those chosen by other children, 73.6% of whom chose at the third status level or above in a seventeen level classification, was noted.

Professor Almy commented, 'the themes that recur throughout the interviews are that school is a place where you are expected to work hard. To work hard is to learn and to learn is the child's role in school. Most children express conformity to these themes, at least in the sense that they are aware that they should do so.'

Two important conclusions were drawn from the study. As a pilot, the study did show that children do respond well in an interview situation when they are asked to comment on incidents involving children in classrooms like their own. Further, the views expressed by the children appeared quite similar despite differences in sex, location of their schools and achievements in maths, and these views revealed much more conformity than non-conformity to the regularities that are found in schools.

Clearly, the study indicated that similar interviews with the children as they pass through higher primary grades, and with other children, would be worthwhile. Of particular interest, in such future interviewing, would be the pursuit of differences associated with gender and school achievement as possible trends in both areas were noted in the children's responses in the present study.

SYSTEMATIC OBSERVATION OF BEHAVIOUR

Systematic observation of classroom activities has been carried out since the early years of this century, although the frequency of reporting such observation increased dramatically in the 1960's and 1970's. Coding of pre-recorded classroom activities, captured via audio or video-tape, has occurred although coding from live observation, a far less costly procedure, is the more frequent method. Instruments used to code teacher and pupil behaviours have proliferated so that a wide choice, likely to meet most requirements, is available.

In the Mt Druitt Early Childhood Project, the Personal Record of School Experience (PROSE) had been chosen to monitor activities in the pre-school, kindergarten and first grade. PROSE, an instrument used in live observation, was chosen as the categories available for coding behaviour appeared to include many of the teacher and child process behaviours of interest across the four centre-based intervention programs. Descriptions of classroom activities derived from PROSE records permitted comparisons across programs and an evaluation of levels of implementation. Because of the range of behaviours which could be coded using PROSE it was judged that the instrument would be appropriate also for systematic observation of a variety of third grade classrooms in the Longitudinal Study.

PROSE had been developed initially for use in U.S. primary grade classrooms and was adopted by the Mt Druitt Early Childhood Project for use in pre-school

classrooms. Careful analysis of the definitions of categories embedded in the original instrument and in the Mt Druitt adaptation revealed weaknesses. Categories in observation instruments need to be unambiguously defined, exclusive of each other, and exhaustively capable of coding all the events of interest to a study. On none of these grounds were the original or the adapted instruments adequate.

Further refinement of the PROSE instrument was undertaken, in the main by the Field Director but with discussion and additional insights from other staff. Classroom observation was carried out in order to re-define categories. The single major change to the instrument as introduced for the Longitudinal Study observation, was the bringing together, for simultaneous coding, of both the teacher and target-pupil behaviour codes.

This conjunction of the two sets of codes produced difficulties in the training period, which had to be extended from eight to fifteen days, as the memory load was greatly increased. Past experience with observation systems had indicated, however, that persistence in training would be rewarded with quite reliable, although extensive, sets of observation data during the data gathering phase. This proved to be so; once inter-observer reliability had been established at satisfactory levels (80% or better agreement) the observing team found the system relatively easy to use despite the fact that it contained a large number of categories.

Simultaneous coding of teacher and pupil behaviour was seen as valuable as it would permit, for the first time, the testing of a set of hypotheses, regarding teacher process-pupil process relationships, enunciated on the international scene in the last few years. Rosenshine and Berliner (1978) had suggested, as a result of their syntheses of several major studies of classroom processes of the late seventies, that it appeared many students do not engage in learning tasks when the teacher is monitoring the work of an individual pupil. This has been a highly influential hypotheses, receiving attention throughout the international eductional community. It was not, however, grounded in evidence. The present observation provided an opportunity for claims such as this to be 'put to the test'.

Training in the use of the revised PROSE was conducted originally through the use of videotaped records of primary classrooms although this was rapidly extended into systematic practice in live observation. Inter-observer reliability checks between each pair of the four trained observers were made until agreement in coding reached the 80% level and was maintained consistently over three consecutive five minute periods of observation prior to data collection.

As time would not permit observation in each of the thirty-four third grades involved in the Study, it was decided to observe in half, with at least two classes in each of the eight schools being included. The seventeenth class was selected from those at the school with the greatest number of classes, giving three observation classes at this school. Three mornings of observation per classroom were scheduled so that visits occurred on three different days of the week in weeks spread at least a fortnight apart. The three observations were obtained from three different observers in each classroom. Target pupils (twelve per class) were chosen randomly but stratified by gender and pre-school attendance.

Few systematic observation studies have collected as much as nine hours' observation data in the observed classes and, in this sense, the Mt Druitt Longitudinal Study observation is internationally significant. Generalization from the observation cannot, however, be suggested without extreme caution. Any teacher in any

equivalent third grade in any N.S.W. school could have been substituted for any observed teacher and, for disadvantaged student settings at least, the possibility of generalization from the Mt Druitt Longitudinal is better than that possible from many studies.

In Tables 12 and 13 overleaf the percentage occurrence of each teacher focused category is displayed for all teachers taken together (Table 12), while the child focus categories are shown in the following table (Table 13).

TABLE 12

TEACHER BEHAVIOURS RECORDED BY PROSE
% OCCURRENCE OF EACH CATEGORY

		X %	Range
TEACHER ATTENDING TO	1.	32.8	0 - 93
	2.	1.3	0 - 25
	3-6	3.1	0 - 33
	7+	3.7	0 - 57
	All	46.6	0 - 100
	None	12.5	0 - 53
CONTENT	Language	42.8	0 - 100
	Maths	27.4	0 - 100
	Reading	15.2	0 - 100
	Trans	4.4	0 - 47
	Waiting	.1	0 - 2
	Other Academic	5.3	0 - 93
	Other	4.8	0 - 50
ADULT ACTIVITY	Instruct	6.7	0 - 37
	Direct	5.2	0 - 33
	Demonstrate	4.0	0 - 29
	Question	9.9	0 - 47
	L/Watch	22.8	0 - 60
	Respond	2.1	0 - 13
	Feedback	15.5	0 - 78
	Manage	25.1	0 - 67
	Control	6.7	0 - 60
	Social	.4	0 - 22
	Move	1.4	0 - 20
	Passive	.2	0 - 7
STRUCTURE	Teacher (closed)	99.6	0 - 100
	Teacher (Open)	.2	0 - 11
	Child	.01	0 - 2
CHILD TO ADULT	Initiate	.06	0 - 4
	Star	2.7	0 - 20
	L/Watch	.4	0 - 14
	Part	42.7	0 - 93
	Not used	54.2	0 - 100
ADULT TO CHILD	Instruct	4.1	0 - 24
	Direct	3.6	0 - 33
	Dem.	2.6	0 - 29
	Question	6.3	0 - 40
	L/Watch	14.4	0 - 50
	Respond	.5	0 - 7
	Feedback	3.0	0 - 20
	Manage	8.4	0 - 67
	Control	2.6	0 - 2
	Social	.1	0 - 4
	Move	.2	0 - 7
	Passive	0	0 - 7
	Not used	54.2	7 - 100
GENDER	Same	23.5	0 - 93
	Opposite	22.3	0 - 96
	Not used	54.2	4 - 100

TABLE 13

CHILD BEHAVIOURS RECORDED BY PROSE
% OCCURRENCE OF EACH CATEGORY

		X %	Range
PUPIL TO PUPIL	Aggression	.1	0 - 4
	Initiate	2.9	0 - 20
	Co-operate	6.5	0 - 46
	Withdraw	.1	0 - 7
	Not used	90.5	51 - 100
PUPIL FROM PUPIL	Aggression	.1	0 - 4
	Initiate	1.3	0 - 13
	Co-operate	7.9	0 - 49
	Withdraw	.1	0 - 7
	Ignore	.3	0 - 7
	Not used	90.5	51 - 100
GENDER	Same	7.6	0 - 47
	Opposite	2.0	0 - 33
	Not used	90.4	51 - 100
TYPE OF ACTIVITY	Material	75.0	10 - 100
	Contact	.3	0 - 7
	Both	.2	0 - 5
	Not used	24.5	0 - 90
VERBALISATION	Verbal	46.5	0 - 88
	Non-verbal	53.4	12 - 100
AFFECT	Positive	3.9	0 - 25
	Negative	.7	0 - 21
	Not used	99	79 - 100
STRUCTURE	Teacher (closed)	79.1	20 - 100
	Teacher (open)	4.4	0 - 55
	Child	16.5	0 - 60
PUPIL ACTIVITY	Paying attention	70.1	13 - 100
	Another task	.3	0 - 7
	Idiosyncratic	2.9	0 - 20
	Transitional	2.3	0 - 27
	Waiting	8.9	0 - 47
	Assisting	1.0	0 - 29
	L/Watch	5.2	0 - 30
	Playing	4.2	0 - 33
	Passive	.3	0 - 7
	Social	4.4	0 - 27
	Distracted	.2	0 - 7

At the present stage of analysis, it is possible to report only descriptive statistics for the observation. A major Technical Report is at present being prepared; in this a lengthy series of hypotheses will be reported, relationship across the sets of categories will be explored, and process-outcome findings will be extensively tested. For the present, however, attention should be drawn in the Teacher Behaviour codes to:

i) The focus upon basic skills and visits to classrooms during pre-lunch sessions resulted in 89.8% of codes being recorded for language, maths, or reading instruction or movement from one of these areas to another. In actual time, the Tables reflect about one hundred and thirty hours of observation of basic skills across the classrooms observed. This is a substantial basis for the findings reported.

ii) Teacher attention to groups (Codes 2,3-6,7+) within basic skills instruction, appears remarkably low, at 8.1% of codes, given the exhortations of the teaching literature which recommends grouping as a favoured teaching practice.

iii) The devotion of the teacher's attention either to the whole class (All) or to individuals (1) is a major Australian confirmation of findings reported in the U.S.A. for some years. In the past, it has been claimed that primary-school teachers have concentrated upon whole class instruction but a swing towards individual attention has been noted in more recent observation. This Mt Druitt data suggests that these Australian teachers also accept the necessity for individual attention in basic skills instruction. The high levels of recorded coding for individual and whole class teacher attention will promote a reasonable test of the relationships between pupil engagement in tasks and pupil focus of teacher attention.

iv) The amount of instruction, only 6.7% (Instruct) of all teacher activity codes, reflects the strong impression gained by the observers of the primacy of repetition and practice in basic skills learning in the third grade classrooms. This emphasis may be noted in the 9.2% of codes devoted to teacher demonstration of methods (Demonstrate) or to the teacher's direction of practice (Direct).

v) The fact that nearly one third of teacher codes (31.8%) are recorded for management (Manage) or control (Control) while, perhaps, having the appearance of being high is not surprising if the findings in these classrooms are compared to those reported elsewhere. Teacher management and control have often been reported as major teaching activities.

vi) Teacher supervision of students, 22.8% of codes (L/Watch), was recorded when the teacher was actively monitoring pupil academic performance as well as for supervision of pupil deportment. When the Manage, Control and L/Watch codes are taken together, they account for 54.6% of all teacher codes and, although a proportion of this amount may be attributed to academic supervision, it does suggest that approximately half of the recorded codes were assigned to teacher activities not directly associated with the promotion of pupil learning. This result underlines the necessity for the primary teacher to be as much a skilled classroom manager as a skilful instructor.

vii) The traditional nature of the third grade classes in the Mt Druitt Study is identified clearly by the fact that 99.6% of observed classroom learning activities were designed totally by the teacher with the children having a negligible input into decisions regarding the tasks.

viii The Child To Adult categories contained in Table 12 were employed only when the target child was attending to the teacher, thus, for 54.2% of coding occurrences, codes in this set were not used. The percentages reported indicate that the target pupils were, for the most part, (Part) in a group receiving general teacher attention, 42.7% of coded interaction, rather than the immediate focus of the teacher's attention. Individual pupils initiated negligble amounts of interaction with teachers, 0.06% (Initiate), again confirming the teacher-centred, traditional nature of the classes observed. Target pupils were recorded as the immediate focus of the teacher's attention for 2.7% of codes. Although it is not possible to make an immediate translation from codes to time such a proportion could indicate that individual pupils in a class may receive (approx) one minute in thirty of teacher attention. Given that class numbers of around thirty were most common teacher attention appears, on the surface at least, to be spread quite democratically amongst pupils.

iv) The Adult to Child categories were recorded only when the target pupil was attending to the teacher. The spread across the codes in this set of categories reflects similar proportions to those recorded in the more general Adult Activity set. The codes of this set were discussed above.

x) While the teacher-pupil interactions appear to be spread equally between boys and girls (22.5% and 22.3%) there were unequal numbers of male and female teachers observed. A more detailed analysis of the data is being carried out as gender differences in classroom processes are, hypothetically, quite important.

From the Child Behaviour codes (Table 13) attention should be given to the following:

i) Relatively little pupil-pupil interaction took place with less than 10% of pupil focused codes recorded for Pupil To Pupil and Pupil From Pupil codes. What took place was typified by co-operation rather than withdrawal or ignoring and, in the sense that co-operative interaction could be seen as reinforcing, it is surprising that more was not observed. It would seem, however, that these traditional classrooms were characterised by high levels of pupil engagement in teacher approved activities. The impression of the observers, that little of the peer interaction was work related, was reinforced by the fact that high proportions of codes were recorded for pupil engagement, that pupils were attending to the teacher as part of a group for 42% of codes, or that pupils were working as individuals on tasks. If the goal of the teaching was to maximise individual pupil involvement in teacher-set tasks, which appears to be the case as few teachers made any provision for peer interaction on tasks, then the teaching could be said to be successful.

ii) When peer interaction occurred it was more likely to be with a pupil of the same sex rather than of the opposite sex, 7.6% for a same-sex interaction compared to 2.0% for opposite, although this was as much

due, perhaps, to seating arrangements as to attitudes to sex related roles. Of course, teacher assignment of seating may reflect, consciously or unconsciously, the teacher's attitude to sex-related roles of pupils.

iii) During the early 1960's, Flanders enunciated his famous law of two-thirds, which suggested that two-thirds of time in classrooms was taken up in talk, two-thirds of which was teacher generated, and two-thirds of this talk was directed at management and control. Later evidence has suggested that classrooms appear less and less to reflect that state of affairs and the data from these Mt Druitt classrooms suggests that pupils were involved in verbal interaction, either as listeners or talkers, less than half of all recording.

iv) Flanders also suggested that classrooms were emotional deserts. Although the definitions of the Affect codes were made extremely liberal, in an endeavour to capture the essence of the emotional, attitudinal tone of the clasrooms, little affect was recorded. The four observers either could not ascertain, or infer, an emotional component of an observed interaction, or were convinced of the emotional neutrality of the observed situation for 95.5% of all coded observations. It must be reported, however, that observers were aware of, and reported similar responses to, emotional climates in the classrooms observed. The systematic observation approach may not be the most appropriate method for monitoring affect in classrooms.

v) While it had been noted earlier that it had been almost exclusively the teachers who had defined the classroom learning tasks, observation of individual target pupils showed that children would, on occasion, redefine learning tasks, or engage in non-work related activities despite the teacher defined task in hand. In response to Professor Almy's questioning, reported earlier, the children had indicated that children just 'had to put up with' teacher imposed tasks. Here is evidence that they don't, at least, not always, for some 21% of tasks were structured either by the child exclusively or through pupil involvement with the teacher in task structuring.

vi) As teachers gave almost no opportunity, however, for pupils to assist in defining tasks, it is not surprising to find that almost all pupil-defined activities were not work related. The pupil activities Listen/Watch, Playing, Passive, Social and Distracted, all off-task codes, accounted for 11.3% of all codes.

vii) However, pupils were recorded as being involved in learning tasks, or in teacher approved activities, indicating on-task involvement, for 88.7% of coding. While there was variation across classes in the level of recorded on-task engagement, the lowest recorded level was 73.8% of coding, the highest 94.4%, the average, 85.5%, seems extraordinarily high when compared to average levels reported in other studies which tend to cluster around the 75% level in primary grades. Again, if the teachers were aiming to maximise individual pupil's task involvement, they may be judged to be very successful.

An analysis of variance was conducted upon the child activity/behaviour categories of PROSE in order to compare the pre-school attenders with those who had

not attended pre-school. The sub-sample for which a complete history of pre-school attendance was available was that group first identified in 1977 for the Mt Druitt Early Childhood Project. When the PROSE data of these children was compared, on thirty-one single categories measures of PROSE and five compound measures, five highly significant differences were found. These differences need, however, to be interpreted with caution for, with the number of comparisons performed, the likelihood of Type 1 errors was high.

The pre-school attenders were coded significantly more frequently for involvement in the learning task as defined by the teacher as well as significantly less frequently waiting for teacher attention. The models of school learning, which will be tested using data obtained during 1981, all include pupil attention to task, pupil involvement, or pupil time-on-task as key variables in explanations of pupil achievement. Whilst significant differences between pre-schoolers and non-preschoolers have not been found for achievement measures, other than for word knowledge measured by the Peabody Picture Vocabulary Test, confusing what might have been expected, it is believed that these findings of greater task involvement are important. The yet to be performed multi-variate analyses may provide an opportunity to better identify the exact role that the greater involvement of previous pre-school attenders may be playing.

Brofenbrenner, for example, suggests that, although achievement differences related to pre-school attendance are not found, more pre-schoolers "get to the right station, on time, and catch the next train". This metaphor, explaining the significantly smaller likelihood of disadvantaged pre-school attenders later assignment to special education or repetition in later primary grades, applies particularly to those children scoring at the lower levels on achievement tests. Given a comparison of pre-school and non-preschool attenders later achievement, for both high and lowachievers, it may be found that attention to task is crucial for Mt Druitt lower achievers only. Exciting analyses remain to be performed.

Three other significant differences were found. Those who had previously attended pre-school were more frequently assigned the Transition code, which coded activities involved in changing one task for another. Of the six on-task categories, Transition was the least often recorded overall and of least importance. It is difficult, however, to explain the differences, particularly when all children were located in classrooms with such high levels of teacher structure.

Significant differences for two compound measure comparisons were also noted. These amalgamated measures were brought together to give a single score for total pupil involvement in academic activities and a score for involvement in teacher approved, non-academic activities. Both measures included single categories for which significant differences have been noted above. Explanations for the differences would be based, therefore, on those suggestions already noted.

These comparisons of PROSE records of previously attending pre-school pupils with those who did not attend have produced the first reported differences in primary school behaviour related to earlier educational experiences.

CLASSROOM DISRUPTION

As an activity which would enable the Study team to become quickly familiar with the classrooms involved in the Study time was set aside early in the first school

term (February/March) for visits to classrooms, particularly those in Mt Druitt schools. These observations by the four full-time research staff were best described as casual; they were not seen as ethnographic or systematic in the sense in which those terms are applied to classroom observation. The team, however, could not help but be alerted to events recurring across time in individual classrooms as well as across classrooms.

In discussions following these visits, several matters were raised but each of the four observers independently voiced concern at, what appeared to them to be, high levels of pupil disruption to on-going lessons in several of the Mt Druitt classrooms. Comment was made also with regard to the apparently high levels of teacher control and management behaviours which appeared to accompany pupil disruption.

Discussions with Principals and teachers in Mt Druitt schools had also covered, amongst many matters, the teacher's perception of the necessity that extra time needed to be spent in class management than, they thought, would be the case elsewhere. They also expressed an opinion that the curricula needed to be arranged, and instruction presented, in special ways, so that potential disruption could be minimised. Even with such precautions, many teachers suggested, lessons did not flow evenly or smoothly. Several teachers hypothesised that Mt Druitt children had shorter attention spans, or lacked perseverance, or had poor attitudes to work and that these characteristics presented particular difficulties to the planning of instruction. On the other hand, there were teachers who insisted that Mt Druitt children were the same as those elsewhere and instructional planning was no more difficult in Mt Druitt than in any school.

The casual observation of the Study team had introduced them to many tranquil, disruption free classrooms. There were, however, classrooms where dissension and tension marked the time spent in them observing. The interest of the Study team was provoked by such observations. What were the consequences, in cognitive and emotional terms, for children who spent long periods in lessons markedly disjointed and disconnected as a consequence of pupil disruption and teacher execution of control?

The literature on academic engagement, referred to earlier, was one source which suggested that greater interruption to the time spent in instruction and learning may be accompanied by lowered pupil achievement. Humanistic theories, models of child-centred education, and 'self' theories were other sources which suggested that learning could well be effected if the learning environment was not warm, supportive, empathic or emotionally comfortable as might well be the case in classrooms where disruption and control dominated activities. In any case, the quality of the schooling experience of the Mt Druitt children was of interest in itself. Could it be that the dynamics of disadvantage included less opportunity to learn, disjointed instructional presentations, and teaching more often characterised as controlling?

As the Study team were to observe systematically in classrooms, it was decided that, initially, the questions of rate of pupil disruption and type of teacher control could, at least, be investigated. This data would not only affirm or deny that Mt Druitt children presented higher levels of disruption but would also add to the Study's ability to describe the world of, and effects of, disadvantage.

A systematic review of the classroom control and management literature identified that no systematic investigation had been conducted in this area in Australia nor had much been accomplished elsewhere. Indeed, the literature was long

on rhetoric but short on substance. No systematic observation instrument had been designed for the study of pupil disruption and teacher control. From sources such as the literature review, the conversations with teachers, the casual observation in classrooms, and a conceptual analysis a system for systematic observation was developed and, given several trials, judged to be useful.

The instrument, DESIST, was named for a concept first defined by Jacob Kounin from his studies of the problem of classroom discipline. A desist, to Kounin, was 'how a teacher handles misbehaviour.' In the Longitudinal Study, the desist was deliberately widened in meaning to include any pupil behaviour which drew a teacher intervention to redirect or stop the occurrence of the behaviour. Any pupil behaviours, whether or not "misbehaviours", were of interest if they interfered with the dynamics of the lesson.

Categories of pupil behaviours on DESIST were developed initially from the Study team's classroom observation. Additional categories, derived from previous factor analytic studies of pupil behaviour, ensured that personality disorder and inadequacy-immaturity behaviour categories took their place in the instrument. Conduct disorder categories had predominated in the set of categories derived from observation in Mt Druitt classrooms.

DESIST was used by four, trained observers, after inter-observer reliability had reached satisfactory levels, in the seventeen classrooms in which PROSE observation was being conducted. The plan was to complete a five minute DESIST sample of pupil and teacher behaviour following the completion of one complete round of PROSE observation. This would give four observation periods each day, a total of twenty minutes DESIST recording, to produce a maximum of sixty minutes observation over the three days planned for each classroom.

In reality, the majority of classrooms were observed for less than this period; priority was given to completion of PROSE observation and any interruptions to time in the observed classroom (e.g. unexpected visitors, spontaneous viewing of educational TV broadcast) often meant non-completion of the full set of DESIST observations. PROSE gave the opportunity for investigations of behaviours of sub-groups within classes, and groups drawn from pupils in a variety of classes, which DESIST could not do and, for this reason, PROSE was seen as more valuable. In fact, the data produced from DESIST looks, at this very early stage of analysis, to be capable of explaining more of the variance in pupil outcome measures than does the data generated from PROSE observation, the reverse of what had been expected.

In the report of the findings which follows, DESIST scores for teachers are reported only if twenty-five minutes or more of observation was available; less time could have been the result of data drawn as a single day of observation and, it was believed, might not have given a reliable estimate of typical pupil and teacher behaviour. As with all other analyses reported only very early, descriptive statistics can be reported here. A technical report regarding DESIST is in preparation.

In the table below, DESiST data has been used to derive a statistic, the number of desist incidents in a thirty minute period, in order that comparisons might be made across classrooms, across schools, and across locations.

TABLE 14

Desist Incidents Per Thirty Minutes for Classes

Location	Class	D/30
Mt Druitt 1	1	11.25
	2	22.50
Mt Druitt 2	3	15.69
Mt Druitt 3	4	7.99
	5	14.25
Mt Druitt 4	6	9.60
	7	23.25
	8	25.99
Mt Druitt 5	9	7.50
	10	12.66
	11	12.00
Contrast 1	12	0
	13	15.00
Contrast 2	14	12.00
	15	9.33
Contrast 3	16	12.00
	17	19.09

Across all classes in which observation took place, the average incidence of desisting in a thirty minute period was 13.53 desists, or a little less than one every two minutes on average. Although desist incidents did not appear to be spread equally across time a picture of relatively frequent episodes of interference to on-going instruction does emerge for many classes although others are marked by infrequent occurrence of desisting. Eight of the seventeen classes listed in Table 14 cluster around the average, being within the range of two desist incidents per thirty minutes (approx) above or below the average. The classes lying beyond these levels are of interest.

A single class was observed never to have a desist incident. DESIST data in this classroom was gathered by three observers over three days of observation so that evidence of consistency of a teaching style devoid of control techniques appears to have emerged. Each of the observers did report pupil behaviour, in this class, which may have drawn a teacher desist in classes elsewhere but all observers remarked also on the tranquility and general air of lively involvement of pupils in classroom

activities evident here. Such observations do suggest, however, that desisting may have as much to do with individual teacher's definitions of disruptive pupil behaviour as do the pupil behaviours themselves. This aspect is well worthy of follow-up studies in its own right.

On the other hand, classrooms were observed where desisting was occurring at a rate of one desist at just a little over every minute. Although the time taken up by desist incidents was not monitored such unusually high examples of desisting, compared to the remainder of the sample, do suggest that greater time loss from time available for instruction must occur in these classrooms and that lesson presentation must be more disjointed than elsewhere.

In the table below, several comparisons are reported based upon an analysis of the desist per thirty minute statistic.

TABLE 15

Comparisons of Location of Classes, Teacher Gender, and Pupil Ability Levels for Desist Incidents per Thirty Minutes

Comparison	Means	S.D.	t	p
Mt Druitt's	14.79	6.39	1.09	0.3
Non Mt Druitt	11.24	6.43		
Male v's	11.77	6.39	1.38	0.2
Female	16.05	6.09		
A Stream v's	10.41	3.3	2.61	0.02
Other in Mt Druitt	18.44	6.15		

Only the A stream class comparison with other Mt Druitt classes reaches a statistically significant level. It is this finding in particular which suggests that the DESIST measure will explain a greater amount of variation in the pupil basic skills achievement test scores than will measures derived from PROSE. The finding suggests that on one hand, it may be better for the Mt Druitt child to achieve well enough to be placed in an 'A' stream class if they are to enjoy instruction marked by fewer disruptions. On the other hand, the finding may provoke interest in organising parallel classes across grades rather than streaming by achievement.

The Mt Druitt comparison with Contrast schools suggests that there is no difference in the amount of disruption noted overall in Mt Druitt classrooms to that noted elsewhere. By the time the DESIST Observation was conducted, in July/August, teachers and pupils had been together for six months, giving time for conduct and deportment rules to have become established. The observation team remains intuitively convinced, however, that observation earlier in the year may well have resulted in a different finding with greater levels of disruption perhaps being possible earlier in the first term. Studies of patterns of disruption across the academic year would prove interesting. However, there is evidence here to refute suggestions that disadvantaged pupils are always more disruptive and teachers in disadvantaged schools

always more controlling.

The male teacher desist per thirty minutes statistical comparison with female teacher desisting approaches statistical significance. The small numbers involved in this and the other comparisons make it difficult for statistical significance to be found and the trend towards greater disruption in the classrooms of female teachers may, in a study of larger numbers of classrooms, become significant. It is not known whether boys and girls are equally disruptive and equally disruptive given a female or male teacher, these are possibilities for future study.

PARENT-SCHOOL RELATIONSHIP

As reported earlier, much of the resources available to the Longitudinal Study in 1981 had been devoted to an interview/questionnaire survey of the parents and families of the children in the study. While this was seen as the major commitment with parents for the year, it was also decided that piloting of studies of school-home relationships could be carried out in order to identify areas for study in later years of the Longitudinal Study. After much discussion, in a group involving three members of the Study team, Professor M. Almy, and two academics from the School of Education, it was decided that homework as a topic could be a reasonably neutral, useful vehicle, for the promotion of discussions of the parents' views of schools and the teachers' views of the home.

An interview schedule, probing for the interviewee's opinions on the rationale for homework, its role in the total curriculum, its purposes and problems associated with it, was designed with each topic being addressed at each of the levels of school, teacher, parent and child. In the piloting of this interview deliberate variation was introduced to the questions employed and the methods used. Detailed notes were kept of all conversations and several were audio-recorded.

Twenty seven children, their parents and their teachers were selected randomly for interview. This method, known in sociological research as 'triangulation', enables the views of the three different types of respondents to be compared for agreements and disagreements, often proving to be a source of useful additional insight. At least three pupils were selected from each of the eight participating schools.

The New South Wales Department of Education's official policy permits schools to set homework for third grade pupils, although written work is not allowed and homework may not occur on more than three evenings per week nor take longer than twenty minutes to complete. Each of the eight schools allowed individual class teachers to make their own decisions with regard to homework although two of the school Principals suggested that the most appropriate homework for third graders would be 'reading for pleasure' while the remaining six schools had homework policy guidelines.

All teachers, parents and children agreed that homework was necessary. The teachers set homework, the majority for at least four nights a week in order to ensure completion of work begun in school, or to promote revision, or to encourage reading for pleasure. The parents thought that homework would promote progress in basic skills. The children believed homework not only helped them to learn but it would help them 'get a job' after completing school. In general, most parents were happy about the amount of homework set; some thought it should be more regular, and designed to ensure basic skills practice more than it did.

Parents and children's views of the conditions under which homework was done tended to diverge. Parents suggested that homework was done typically in a quiet

place, without T.V. , and with few distractions. Children, on the other hand, suggested that homework was done during commercials on the T.V., that it was spread over a long period, and was often accompanied by parental 'nagging'. Many children said that homework interfered with their after-school activities and with friendships.

An interesting difference emerged between the type of homework set for Mt Druitt children compared to children in the Contrast Schools. While the Mt Druitt teachers did not set projects (activities which require research, analysis and synthesis for an original presentation of findings) because the children could not handle them, teachers in the Contrast Schools often set them. Parents, however, were not keen on projects: they created too much homework for the parents.

The interview included probing questions with regard to parent-school contacts. Generally, little contact was reported despite the teachers' assurance that they were happy to meet with parents at any time. Most contact was made in formally arranged parent-teacher interviews on one or two occasions in the year. Some parents who had made informal contact with teachers during the year suggested that teachers appeared to be defensive and uninterested in the parents' point of view. Parents, generally, did not see frequent school contact as necessary, now the children were in primary school, although it had been when the child was younger.

The pilot had produced responses little different from school to school. This may have been the result of poor interviewing, or a poor set of questions, or of parental responses slanted towards giving the interviewers 'what they wanted' as much as being a valid reporting of existing beliefs. However, it was agreed generally that the topic may not have been as useful for studying home-school relationships as had at first been thought.

THE ASSESSMENT OF LANGUAGE DEVELOPMENT

The Mt Druitt Longitudinal Study provided an opportunity to study the language development of a group of up to nine hundred children during their primary years of schooling. The central focus of the language study is a group of approximately one hundred and fifty children who were part of the previous study, the Mt Druitt Early Childhood Project. Data is available on this smaller group of children from 1977, when they were in the preschool, until the end of Year Two of primary schooling. In particular, the longitudinal achievement of this group's vocabulary is discussed.

The language development of the children will be studied in two ways in the Longitudinal Study:

(i) an evaluation of achievement in language, i.e. reading, listening, speaking and writing, for the larger sample of one thousand children.

(ii) a study of the language development of a smaller group, probably concentrating on the one hundred and fifty Mt Druitt preschoolers.

These studies will be quite different in methodology. All the restrictions imposed by the longitudinal design of the research will have to be taken into account in designing them. The expected attrition rate means that some data must be collected on all children in the first year of the study and while the deficiencies of

group testing children in language skills are well known, some competencies that might have been better examined in an interview with individuals will need to be group tested. Similarly, questions of language development which may have been better examined in a naturalistic setting may have to be tested.

Assessment of language arts achievement is the central component in the language study. The major research questions of the Mt Druitt Longitudinal study deal with the effects of schooling on children's learning and the basic skills areas that form the core of the academic school curriculum are of particular interest and have to be thoroughly assessed.

Of the language arts curriculum content area, reading, writing and spelling were selected for intensive study. Listening was omitted because of the lack of a good Australian instrument in the area, and speaking was not to be evaluated because the time and effort involved would be too onerous for present staff levels.

A norm-referenced testing program was designed to assess the children's language achievement in reading and spelling. The longitudinal design of the major study indicated that norm-referenced measures would be more appropriate than criterion-referenced measures although some criterion referenced measures were trialled, these were found to yield little information. In addition, tests which differentiated carefully between ability levels were needed for the first testing event of the longitudinal study, so that children could be identified for the more intense, further study of the smaller group of children.

It was decided to use the ACER Primary Reading (Survey) Test to test word knowledge and comprehension (Level A Form R). These tests had been specifically designed for use in Australian schools and normed on an Australian population. Some children who were in the Mt Druitt Early Childhood Project had previously completed Level AA of the ACER Primary Reading (Survey) Tests in 1980, in Year Two of primary schooling. To assess spelling ability, the Schonell spelling test, form S2, was used.

The other major language arts area selected for evaluation was writing. It was envisaged that the analysis of writing samples would provide two important types of data: some school-taught skills, such as spelling ability, punctuation accuracy and coherence in test writing could be assessed while the development of underlying language skills could be mapped by examining the growth of syntactic complexity in sentence and phrase structure and the growth of a more elaborate vocabularly. The collection of writing samples, therefore, could contribute to both the 'achievement and the 'language development' aspects of the study.

Sample stories were completed by all children in the study, under the supervision of the class teachers. The amount of assistance that teachers were permitted to give to children was limited, and a standard format for introducing the story writing task was suggested. The teachers were briefed before presenting the task to the children. The children wrote the stories in special folders with sufficient space for writing and illustrating the story, and for practising spelling words.

All children wrote on the same topic, although there was some scope for choice within it. The topic was carefully chosen from a range of topics after consultation with the teachers of Year Three classes who commented on the suitability of the topics for the children in their class. All of the topics chosen were intended to elicit <u>imaginative</u> writing from the children as it was believed that imaginative writing

would be less restricted than descriptive writing. The topic presented to the children was -

'Imagine that you are a cat, lion, bird or spider. Write about an exciting day in your life.'

The essays were collected and are now being prepared for analysis.

A small scale study of language development for a group of children chosen from an inspection of results on reading tests is in the planning stage. It may be interesting, for example, to carry out a comparative study of the language development of high achieving compared to low achieving children. Such a study might pinpoint important differences in the language development of the two groups which may be affecting their school programs.

Another approach, which examines the 'language environment' of the children and their functioning with it, will also be adopted. Tentatively, it is hoped to gather information on the language environment offered by the classroom and the home. The design of this study is under consideration at present.

Early analyses have been run on the following tests -

ACER Word Knowledge, Level A Form R.
ACER Comprehension, Level A Form R.
Schonell Spelling, Form S2

The means and standard deviations by school are set out in Table 16.

TABLE 16

Results of Language Testing

	Word Knowledge		Comprehension		Spelling	
	X	sd	X	sd	X	sd
Mt Druitt 1	15.76	9.5	12.58	6.3	34.21	13.9
Mt Druitt 2	18.62	8.8	14.79	7.1	41.65	11.2
Mt Druitt 3	17.62	7.6	14.50	6.4	36.17	12.3
Mt Druitt 4	17.08	7.4	14.19	6.2	39.34	10.9
Mt Druitt 5	16.62	8.5	14.08	7.1	39.51	14.6
Contrast 1	29.46	6.9	23.13	6.8	49.78	12.3
Contrast 2	27.40	7.8	23.78	6.2	52.51	10.0
Contrast 3	19.88	9.4	15.77	7.6	41.98	14.3
Total	20.15	9.5	16.50	7.8	41.80	14.25

The figures reported in Table 16 indicate that there are significant differences between some of the groups in the study. On all three tests (Word Knowledge, Comprehension and Spelling), children at Contrast 1 and Contrast 2 schools, performed significantly better than children at the other six schools. In addition, girls obtained significantly better scores on Comprehension and Spelling than boys. This may be an interesting finding to follow up. There was, however, no significant differences on any of these measures between the preschool and non preschool group.

In future years, children will be tested on the appropriate forms of the ACER

Word Knowledge and Comprehension Tests and the Schonell spelling test. In addition, case studies of children's language development, focusing on the Mt Druitt group will be launched. Planning is now in progress for this component of the overall research design.

Within the sample of children presently being assessed by the Mt Druitt Longitudinal Study, there is a small group (N = 142) at Mt Druitt schools which has had intensive assessment of vocabulary development. These children were given the Peabody Picture Vocabulary Test (P.P.V.T.) at the end of 1978, when they were in Kindergarten, and again in 1979 (Year 1) and 1980 (Year 2). In each year that it has been administered there have been differences between groups in the scores obtained on this test. For example, in 1979, 1980 and 1981, boys were superior to girls on performance on the P.P.V.T. and in 1980, preschoolers were superior to non preschoolers on the P.P.V.T.

In 1982, the P.P.V.T. was administered to the children who remained from the original groups of Mt Druitt preschoolers and non preschoolers. There were, however, no differences between either boys and girls, or preschoolers and non preschoolers. An interesting characteristic of the P.P.V.T. data when viewed longitudinally is that the children showed a dramatic improvement in Year 3 over their performance in Year 2. At present, explanations are being sought for this phenomenon: the content and structure of the test, testing conditions and working schemes, are all being examined to exclude extraneous causes that may have influenced the result.

Although differences have emerged on past testings with the P.P.V.T., these will need to be reported very carefully, as some of the differences which are statistically different may, in fact, represent small educational gains only. However, this study will remain central to the examination of preschool/non pre-school differences in achievement in vocabulary.

CHILDREN'S MOTIVATION; HOW IMPORTANT FOR ACHIEVEMENT:

The research plan for the Mt Druitt Longitudinal Study included an evaluation of personality variables which may influence children's school achievement. This is a wide field with several possibilities for research which fall broadly into two major areas: self-concept: and locus of control. The relationship of both of these variables to school achievement has been extensively studied, but there are few longitudinal studies of these relationships. In Australia, there appear to be few studies carried out of personality/motivational variables affecting school performance in primary school children. A study of possible relationships between motivation and achievement could provide interesting data in two areas of importance to the Mt Druitt Longitudinal Study. First, it would be an opportunity to study the developmental patterns of personality/motivational variables which may influence school achievement over time. Second, it was thought that this area might provide good quality descriptive data of gender linked differences. It could well be that sex differences in performance, if they are found, could be explained by the different attitudes that boys and girls have to success and failure in school. Some researchers suggest that these attitudes strongly affect expectations for success and failure, which in turn set up behaviour patterns which contribute to high or low performance.

After a review of the literature had been carried out, and following consultations with experts in the areas of self-concept and locus of control measurement, it was decided to focus on a specific measure, i.e one that looked at

children's attitudes only to intellectual achievement. This seemed more appropriate to the central issues the Study is examining, and led to the selection of the Intellectual Achievement Responsibility Questionnaire (IARQ). This is a locus of control measure which assesses the degree to which individual children accept responsibility for their academic successes and blame for their academic failure. The twenty item short form of the test was chosen, because it appeared to cover a range of school situations.

Two pilot studies using the IARQ were carried out. The first assessed the instrument's suitability for use with year three Australian children of all ability levels. Two staff members led four children through the instrument individually, using an interview technique rather than a testing situation. The children were questioned on their understanding of terminology and procedures, and the experimenters checked that the language used was suitable and clear, that the forced-choice format was thoroughly understood and that the instrument could be completed within a reasonable length of time, i.e. within thirty minutes. From notes taken on this piloting, the instructions were rewritten to make them more precise, so that the IARQ could be administered to a whole class simultaneously, and the wording of some questions was changed. However, care was taken not to alter the text substantially so that the findings of this study could be compared with findings of other studies which used the instrument.

The amended instructions and test form were tested in a second pilot which was carried out with an entire year Three class in a Mt Druitt school not involved with the Study. The class was a 'middle stream.' The pilot revealed that the instrument could be given successfully to an entire class when the instructions were carefully read and practice examples worked through on the blackboard. Observation indicated that children could adequately follow the reading and work only one alternative in their answer on the basis of this pilot, so the instructions given before the test were refined, and the test form finalised.

The IARQ was then administered to all children enrolled in the Study in November 1981, at the same time as the major achievement testing. The total number of children tested was 767. Members of the Study team administered the questionnaire. The children completed the questionnaire in their class groups, except those children absent at the time of group testing who were tested either individually or in a small group by one of the study staff after the main testing period. Considerable effort was spent in picking up absentees so that the sample would not be too depleted by attrition.

At the time of writing, only preliminary analyses have been carried ou on the data. However, early findings indicate that the basis for an interesting follow-up study exists in the data. Initial analyses indicate that:

(i) children at one of the schools perform significantly differently than children at all other schools;

(ii) there were no significant differences between pre-schoolers and non pre-schoolers on this measure;

(iii) there were no significant sex related differences;

(iv) there was a group of children who scored at a low level on the IARQ. This group will form the core of a case study

examining the possible outcome of an 'external' locus of control orientation indicated by the low score. The children attributed their successes and failures more often to 'external' causes (i.e. luck, other powerful people) than they did to 'internal' causes (i.e. own effort or ability).

Two major studies are suggested by these data: the first would be an examination of the reasons underlying the school difference noted; the second would be a case study of the children with low IARQ scores in order to investigate their patterns of achievement.

The data so far analysed shows exciting potential for further work. In a longitudinal study, there is always the possibility of investigating long-term developmental trends. By administering the IARQ at several points of time in the study, it will be possible to document these trends and their relationships to school achievement at different points in the children's schooling. An interesting study could be launched by looking at the attributions that different children give for their successes and failures. An interview examining attributions would provide data on the causes that the children themselves see as underlying their performance at school. Consultations with people who have studied the field indicate that this area also has particular salience for gender differences, i.e. boys and girls may systematically differ on the type of attributions they give for their performance at school. Another area that appears fruitful for further study is that of behaviour. Locus of control orientation is, it is believed, at least partially formed by the patterns of reinforcement one is exposed to at home and school. A focus on school achievement indicates that a study of the behaviour pattern of children of 'external' and 'internal' locus of control orientation in classrooms could provide useful information from which teachers could develop strategies for successfully improving the achievement levels of externally oriented pupils.

FOR LATER YEARS

Throughout the Report tasks to be performed in the future have been identified. A complete listing of these will emphasise the work loads generated within the project, for the tasks noted below are part only of the projected activities for 1982 and 1983. Tasks identified included:

a) testing of models of school learning;
b) testing of models of effects of family environments;
c) collection of health data;
d) more adequate treatment of psychological development;
e) more adequate treatment of home-school relationships;
f) monitoring of changes in parent expectations for education levels achieved by their children;
g) multivariate analyses of relationships amongst home background, child behaviour, class and school characteristics and school achievement;
h) writing of technical report for mathematics evaluation;
i) continuation of interview program with children;
j) writing of technical report on classroom observation;
k) analysis of data investigating gender related differences;
l) writing of technical report on classroom-disruption observation;
m) investigation of teacher differences in definitions of disruption;

n) investigation of classroom disruption at different times in the academic year;
o) analysis of written expression samples;
p) an intensive study of aspects of language development for a small number of children;
q) a study of the language environment of the children;
r) investigation of gender differences in comprehension and spelling;
s) studies of children with high internal or high external locus-of-control scores.

To these must be added other analytic and writing tasks such as those associated with investigations of the hypothesised cumulative achievement gap experienced by disadvantaged children, or those related to the results of the analyses testing models of learning and environmental effects, or to analysis of written samples, or to differences observed in language development. The list is not endless-but given limitations to time and staff energy it does appear daunting.

The achievements of 1981 (the establishment of healthy working relationships with parents and schools, the gathering of all the data planned for 1981, the bringing together of a strong, research team, the interaction with Professor Almy), do sustain the team. Exciting prospects for 1982 and 1983 (the probable impact upon educational policy of the findings of the Study, the interest expected from a broader educational community) enliven and motivate the team.

APPENDICES

APPENDIX A

MT DRUITT LONGITUDINAL STUDY OF CHILDREN

FAMILY QUESTIONNAIRE

1. Child's Surname _____ Other names _____

2. Which name is the child known by at school? _____

3. Address: _____

_____ Telephone no.: _____

4. Child's date of birth _____ Sex: Male ☐ Female ☐

5. Female Guardian: Surname _____ Other names _____

6. Male Guardian: Surname _____ Other names _____

7. What school does your child attend? _____

8. Did the child attend preschool? (please tick) ☐ Yes ☐ No

If yes, please name the preschool/s _____

9. Child's religion: _____

10. With whom is the child living? (please tick)

☐ Nuclear family intact (i.e. Mother, Father, children)
☐ Single female parent
☐ Separated female parent
☐ Divorced, single female parent
☐ Stable 'de facto' relationship
☐ Widow
☐ Remarried widow
☐ Foster parents
☐ Remarried, female parent previously divorced

☐ Single male parent
☐ Separated male parent
☐ Divorced, single male parent
☐ Grandparent/s
☐ Widower
☐ Remarried widower
☐ Relations
☐ Remarried, male parent previously divorced

11. With how many guardians has the child lived since birth? (eg. with natural parents since birth = 1 guardianship; single parent plus adoptive parent upon marriage = 2; natural parents plus single parent after separation = 2). _____ guardianships

12. How long has the child lived with the present guardian/s only?

_____ years _____ months

13a. If the mother (or female guardian) has been employed over the past four years please give a detailed description of positions held, employer and period of time spent in each position. The actual employer's name is not essential, but could be very helpful. However, it is essential for you to indicate whether the position is in the government or a private firm; the nature of the employer's business; and the exact position held in that business. Please note if employment has been on a part-time or full-time basis.

1977 _____

_____

1978 _____

13a. (Cont'd.) 1979 _____

_____

1980 _____

_____

1981 _____

_____

13b. If the mother (female guardian) has been unemployed (i.e. actively seeking employment) over the past 4 years, please indicate frequency and length of unemployment.

_____

_____

14. If the father (or male guardian) has been employed over the past four years please give a detailed description of employment history. The actual employer's name is not essential, but could be very helpful. However, it is essential for you to indicate whether the position is in the government or a private firm; the nature of the employer's business; and the exact position held in that business. Please note if employment has been on a full-time or part-time basis.

1977 _____

_____

1978 _____

_____

1979 _____

_____

1980 _____

_____

1981 _____

_____

15. If the father (or male guardian) has experienced any periods of unemployment, lasting for more than one month at any time in the past four years, please indicate the frequency and length of time.

_____

_____

16. Sources of Income. Please tick the appropriate boxes. You may need to tick more than one.

Female Guardian		Male Guardian
☐	Full-time work	☐
☐	Part-time work	☐
☐	Unemployment benefit	☐
☐	Sickness benefit	☐
☐	Widows pension	☐
☐	Supporting parent benefit	☐
☐	Workers' compensation	☐
☐	Service pension	☐
☐	None (eg. Home duties)	☐
☐	Maintenance from husband/wife	☐

17. What was the highest level of formal education reached by the mother (or female guardian)?

_____

18. What was the highest level of formal education reached by the father (or male guardian)?

_____

19. Where was the mother's (or female guardian's) education received?

(Please tick)

- ☐ In N.S.W.
- ☐ Interstate
- ☐ In English speaking country overseas
- ☐ In non-English speaking country overseas

20. Where was the father's (or male guardian's) education received?

(Please tick)

- ☐ In N.S.W.
- ☐ Interstate
- ☐ In English speaking country overseas
- ☐ In non-English speaking country overseas

21. What level of education would you say most of the family's adult friends have reached? (Please tick)

- ☐ Postgraduate
- ☐ Undergraduate
- ☐ Diploma/Certificate
- ☐ H.S.C. or Leaving Certificate
- ☐ Technical Certificate
- ☐ School Certificate or Intermediate
- ☐ Some high school
- ☐ Primary
- ☐ No schooling
- ☐ Don't know
- ☐ Can't decide

22. What level of education would most of your brothers, sisters and cousins have reached? (Please tick)

- ☐ Postgraduate
- ☐ Undergraduate
- ☐ Diploma/Certificate
- ☐ H.S.C. or Leaving Certificate
- ☐ Technical Certificate
- ☐ School Certificate or Intermediate
- ☐ Some high school
- ☐ Primary
- ☐ No schooling
- ☐ Don't know
- ☐ Can't decide

23. Are you - (please tick)

- ☐ Renting your home from the Housing Commission?
- ☐ Renting your home from a private owner?
- ☐ Buying your home from the Housing Commission?
- ☐ Buying your home with a Bank or Building Society, etc. loan?
- ☐ Buying a war service home?

OR is the

- ☐ purchase completed of a former Housing Commission home?
- ☐ purchase completed of a former privately owned home?

24. How long have you lived in the Mt Druitt area?

_____ years _____ months

25. What were your reasons for moving to the Mt Druitt area? (Please give details)

_____

_____

26. How many rooms in the home are used exclusively as bedrooms? (Include enclosed verandahs, sleep-outs, etc., if they are bedrooms.)

_____

27. Do any others (eg. uncles, aunts, grandparents, boarders, etc.) apart from the child's immediate family share the home? Please indicate the number of other people.

_____

28. How many people live in the home? Include all those who sleep in the home on more than four nights a week and those who regard it as their legal residence.

_____

29. Birthplace of mother (or female guardian)?

State _____

Country _____

30. Birthplace of father (or male guardian)?

State _____

Country _____

31. Has the mother (female guardian) always lived in Australia?

☐ Yes ☐ No

If no, how long has she lived in Australia?

_____

32. Has the father (male guardian) always lived in Australia?

☐ Yes ☐ No

If no, how long has he lived in Australia?

_____

33. What languages are spoken in the home? Please indicate proportion if more than one. (eg. Italian half, English half)

_____

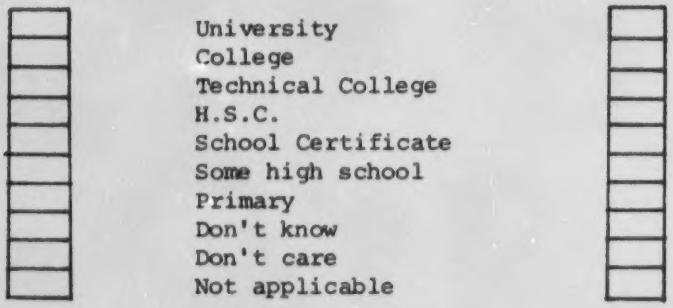
34. What is the child's preferred language at home?

_____

35. Without regard to restrictions of any kind, how much education do you wish your child to have?

a) Female Guardian

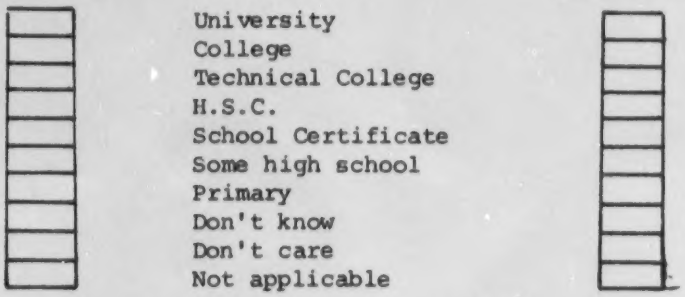
b) Male Guardian



36. How much education do you expect your child to receive?

a) Female Guardian

b) Male Guardian



37. What type of job would the family like the child to have when the child leaves school? Please be as specific as possible.

_____

38. What type of job does the family expect the child to have when the child leaves school? Please be as specific as possible.

_____

39. What newspapers come into the home regularly?

_____

_____

40. What magazines come into the home regularly?

_____

_____

41. Does the child's mother (female guardian) read to the child now?

(Please tick)

- ☐ Yes
- ☐ No
- ☐ Don't know
- ☐ Not applicable

42. Did the child's mother (female guardian) read to the child when younger?

(Please tick)
- ☐ Yes
- ☐ No
- ☐ Don't know
- ☐ Not applicable

43. Does the child's father (male guardian) read to the child now?

(Please tick)
- ☐ Yes
- ☐ No
- ☐ Don't know
- ☐ Not applicable

44. Did the child's father (male guardian) read to the child when younger?

(Please tick)
- ☐ Yes
- ☐ No
- ☐ Don't know
- ☐ Not applicable

45. Do older brothers or sisters, or relatives, or grandparents, or adult boarders read to the child now?

(Please tick)
- ☐ Yes
- ☐ No
- ☐ Don't know
- ☐ Not applicable

46. Did older brothers or sisters, or relatives, or grandparents, or adult boarders read to the child when younger?

(Please tick)
- ☐ Yes
- ☐ No
- ☐ Don't know
- ☐ Not applicable

47. Does the child bring books home to read? (From school or local library, or from friends)

(Please tick)
- ☐ Never
- ☐ Rarely
- ☐ Once a month
- ☐ Once a fortnight
- ☐ Once a week
- ☐ More than once a week
- ☐ Don't know

48. Television Viewing

Please choose from the following alternatives and place the letter in the appropriate box when answering sections (i), (ii), (iii), (iv) and (v) below.

A	Never
B	Rarely
C	Less than 1 hour
D	Less than 2 hours
E	Between 2 to 3 hours
F	Between 3 to 4 hours
G	Between 4 to 5 hours
H	Between 5 to 6 hours
I	Between 6 to 7 hours
J	More than 7 hours

i) How much television does the child watch before school? ☐

ii) How much television does the child watch each day on schoolday afternoons and evenings (Monday - Thursday)? ☐

iii) How much television does the child watch on Friday afternoon and evening? ☐

iv) How much television does the child watch on Saturday? ☐

v) How much television does the child watch on Sunday? ☐

49. Is the child's T.V. viewing ...

(Please tick)

☐ 1. restricted by parents (guardians) to certain programs?
☐ 2. unrestricted?
☐ 3. not restricted but watches programs that all viewers agree to watch?

50. Does the mother (female guardian) discuss T.V. programs viewed with the child?

(Please tick)

☐ Yes
☐ No
☐ Not applicable

51. Does the father (male guardian) discuss T.V. programs viewed with the child?

(Please tick)

☐ Yes
☐ No
☐ Not applicable

52. Do other adults in the home discuss T.V. programs viewed with the child?

(Please tick)

☐ Yes
☐ No
☐ Not applicable

53. Is the child expected to spend a regular amount of time in study and homework away from school?

(Please tick)

☐ Every day
☐ Every school day
☐ Most days
☐ Some days
☐ Occasionally
☐ Rarely
☐ Never

54. Does the mother (female guardian) help the child with homework?

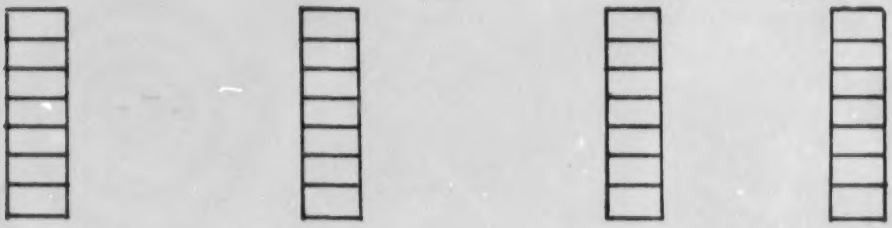
55. Does the father (male guardian help the child with homework?

56. Do older brothers & sisters help the child with homework?

57. Do other adults help the child with homework?

(Please tick)

Very often
Often
Sometimes
Not often
Never
Don't know
Not applicable



58. Does the home have an encyclopaedia or reference books?

(Please tick)

Yes
No

59. How often does the child consult the encyclopaedia or reference books?

(Please tick)

Several times a week
Once a week
Once a fortnight
Once a month

Rarely
Never
Not applicable
Don't know

60. How often does the mother (female guardian) have contact with the school? (Please tick)

61. How often does the father (male guardian) have contact with the school? (Please tick)

Every day
Several times a week
Once a week
Several times a term
Once a term
Once a year
Never
Don't know
Not applicable

62. Do the parents (guardians) discuss school progress with the child?

(Please tick)

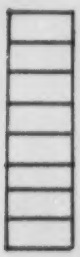
Every day
Several times a week
Once a week
Once a month

Once a term
Once a year
Never

What marks or grades do you expect the child to receive -

63. Now? (Please tick)

64. In high school? (Please tick)



All A's
A's with some B's
B's with some A's
All B's
C's with some B's
All C's
F's with some C's
All F's
Other (please specify)

65. How satisfied is the mother (female guardian) with the education the child receives? (Please tick)

Very satisfied
Reasonably satisfied
Not really satisfied
Very dissatisfied
Don't know
Don't care
Other (please specify)

_____

_____

66. How satisfied is the father (male guardian) with the education the child receives? (Please tick)

_____

_____

67. What recreational activities does the family engage in together regularly either at home or elsewhere? (eg. visits to zoo, museums, barbeques, city sights, picnics, camping, holidays, movies, games, etc.) Please state how often (eg. camping 2/year).

_____

_____

_____

_____

_____

68. What recreational activities does the child engage in outside the home, family and school? (eg. cubs, brownies, dancing class, sports.) Please state how often (eg. soccer 2/week).

_____

_____

_____

_____

_____

.....

APPENDIX B

x

MATHEMATICS MEASURE

MT DRUITT LONGITUDINAL STUDY

CR MATHS TEST - ADDITION DOMAINS

APRIL 1981

NAME: _____

SCHOOL: _____

CLASS: _____

1) 2 + 6 = ☐

2) ☐ = 4 + 5 + 2

3) 6 + 0 = ☐

4) ☐ = 6 + 7

5) 3 + 6 = ☐

6) ☐ = 7 + 7

7) 10 + 7 = ☐

8) ☐ = 5 + 0 + 3

9) ☐ = 2 + 8

10) 9 + 1 = ☐

11) 5 + 7 = ☐

12) ☐ = 2 + 0

13) $\square = 19 + 1$

14) $7 + 2 = \square$

15) $\square = 3 + 9$

16) $0 + 8 = \square$

17) $4 + 9 + 5 = \square$

18) $\square = 9 + 10$

19) $\square = 2 + 3$

20) $9 + 6 = \square$

21) $2 + 14 = \square$

22) $\square = 5 + 1$

23) $\square + 13 = 18$

24) $7 + 3 + 2 = \square$

25) $7 + 0 = \square$

26) $\square = 5 + 5$

27) $6 + 2 + 3 = \square$

28) $\square = 4 + 3$

29) $5 + 4 = \square$

30) $\square = 0 + 5$

MT DRUITT LONGITUDINAL STUDY

CR MATHS TEST - FRACTIONS, PARENTHESES & LAWS

APRIL, 1981

NAME: _____

SCHOOL: _____

CLASS: _____

1) $\square + 6 = 8$

2) $3 + 4 + 6 = 4 + 6 + \square$

3) $\square - 4 = 5$

4) $5 + 1 + 0 = 1 + 0 + \square$

5) $\square = 20 \times \frac{1}{4}$

6) $\square - 3 = 4$

7) $3 + (2 \times 4) = \square$

8) $\square - 7 = 1$

9) $\frac{1}{2} \times 16 = \square$

10) $3 + 6 = 6 + \square$

11) $\square = (6 \times 1) + 2$

12) $\square - 5 = 1$

13) $\square = 7 + (3 \times 4)$

14) $4 + 7 + 5 = 7 + 4 + \square$

15) $7 + 4 = 4 + \square$

16) $\square - 2 = 3$

17) $10 \times \frac{1}{2} = \square$

18) $\square + 8 = 9$

19) $\square + 1 = 1 + 8$

20) $8 + 3 + 2 = 3 + 2 + \square$

21) $\frac{1}{4} \times 12 = \square$

22) $\square + 4 = 8$

23) $4 + 5 = 5 + \square$

24) $\square + 3 = 6$

25) $\square = \frac{1}{4} \times 8$

26) $3 + 1 + 9 = 1 + 9 + \square$

27) $\square + 2 = 7$

28) $(8 \times 2) + 4 = \square$

29) $\square + 5 = 5 + 2$

30) $6 + (3 \times 3) = \square$

MT DRUITT LONGITUDINAL STUDY

CR MATHS TEST - MULTIPLICATION DOMAINS

APRIL 1981

NAME: _____

SCHOOL: _____

CLASS: _____

1) $\square = 6 \times 1$

2) $\square = 2 \times 9$

3) $5 \times 1 = \square$

4) $\square = 7 \times 2$

5) $11 \times 1 = \square$

6) $8 \times 1 = \square$

7) $5 \times 2 = \square$

8) $\square = 19 \times 1$

9) $1 \times 13 = \square$

10) $4 \times 2 = \square$

11) $\square = 3 \times 3$

12) $2 \times 2 = \square$

13) $9 \times 1 = \square$

14) $\square = 7 \times 1$

15) $\square = 2 \times 3$

16) $4 \times 4 = \square$

17) $2 \times 10 = \square$

18) $\square = 1 \times 15$

19) $5 \times 4 = \square$

20) $3 \times 4 = \square$

MT DRUITT LONGITUDINAL STUDY

CR MATHS TEST - SUBTRACTION DOMAINS

APRIL 1981

NAME: _____

SCHOOL: _____

CLASS: _____

1) 6 - 4 = ☐

2) ☐ = 5 - 0

3) 17 - 3 = ☐

4) 8 - 0 = ☐

5) 9 - 5 = ☐

6) ☐ = 14 - 8

7) 16 - 4 = ☐

8) ☐ = 5 - 2

9) 13 - 11 = ☐

10) ☐ = 10 - 5

11) 4 - 0 = ☐

12) ☐ = 9 - 0

C/FWD ... CR MATHS TEST - SUBTRACTION DOMAINS

13) ☐ = 19 - 10

14) 15 - 2 = ☐

15) ☐ = 7 - 0

16) 15 - 12 = ☐

17) ☐ = 7 - 2

18) ☐ = 18 - 12

19) ☐ = 4 - 3

20) 17 - 16 = ☐

(SYSTEM OBSERVATION OF TEACHER AND PUPIL BEHAVIOUR)
PERSONAL RECORD OF SCHOOL EXPERIENCE
PROSE

CHILDNUMBER: _____ OBSERVER: _____ DATE: _____ SCHOOL: _____ CLASS: _____ TEACHER: _____ CHILD NAME: _____

CONTEXT

Time — Cycle 1 / Cycle 2 / Cycle 3 — 1 2 3 4 5

1. Teacher attending to:
   1. 1
   2. 2
   3. 3-6
   4. 7+
   5. ALL
   6. NONE

2. Content:
   1. L.A.
   2. MAT.
   3. R
   4. TRANS
   5. WAIT
   6. OTHR. ACAD.
   7. OTHER

3. Adult Activity:
   1. INSTRUC
   2. DIREC
   3. DEM
   4. QUST
   5. LISWT
   6. RESP
   7. F/B
   8. MAN
   9. CON
   10. SOC
   11. MOV
   12. PASS

4. Structure:
   1. TSTRC
   2. TSTRO
   3. CSTR

Child Description:

. . . . . .

. . . . . .

. . . . . .

. . . . . .

. . . . . .

INTERACTION

TEACHER/PUPIL — Cycle 1 / Cycle 2 / Cycle 3 — 1 2 3 4 5

5. Child to Adult:
   1. INIT
   2. STAR
   3. LISWT
   4. PART

6. Adult to Child
   1. INSTRUC
   2. DIREC
   3. DEM
   4. QUST
   5. LISWT
   6. RESP
   7. F/B
   8. MAN
   9. CON
   10. SOC
   11. MOV
   12. PASS

7. Gender:
   1. SS
   2. OS

PUPIL/PUPIL — Cycle 1 / Cycle 2 / Cycle 3 — 1 2 3 4 5

8. Pupil to Pupil
   1. AGGR
   2. INIT
   3. COOP
   4. WITHD

9. Pupil from Pupil
   1. AGGR
   2. INIT
   3. COOP
   4. WITHD
   5. IGN

10. Gender:
   1. SS
   2. OS

DESCRIPTORS

Cycle 1 / Cycle 2 / Cycle 3 — 1 2 3 4 5

11. Type of Activity:
   1. MTL
   2. CON
   3. BOTH

12. Verbalisation:
   1. V
   2. N-V

13. Affect:
   1. POS
   2. NEG

14. Structure:
   1. TSTRC
   2. TSTRO
   3. CSTR

15. Pupil Activity:
   1. PAT
   2. WOA
   3. IDIO
   4. TRAS
   5. WAIT
   6. ASSIST
   7. L/WTOFF
   8. PLAY
   9. PASS
   10. SOC
   11. DIST

NOTES: . . . . . .

. . . . . .

. . . . . .

. . . . . .

. . . . . .

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APPENDIX D
(CLASSROOM DISRUPTION)
DESIST

OBSERVER: DATE: TIME: TEACHER: SCHOOL: CLASS:

Interaction Context																					
1. Individual child	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2. Two children	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3. Small Group (3-6)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4. Large Group (7+)	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
5. All children	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Content																					
1. L.A.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2. Mat.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3. R	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4. Trans	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
5. Wait	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
6. Other Acad.	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
7. Other	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
To Whom																					
1. Individual (1)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2. Two Children (2)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3. Small Group (3-6)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4. Large Group (7+)	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
5. All	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
6. None	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
What																					
1. Off-task talk to other pupil, note-passing	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2. Calling out of turn, rowdiness	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3. Observing/listening off-task	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4. Verbal aggression to other/s	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
5. Physical aggression to other/s	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
6. Arguing/answering back to teacher	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
7. Play, fidget	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
8. Tantrum	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
9. Sulking	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
10. Crying	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
11. Passive/withdrawn	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
12. Out of seat	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
13. Alternative task	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
14. Tardiness	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
How																					
1. Guide to alternative	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2. Ask for reason	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3. Indirect desist - Question	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4. Command to stop	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
5. Withdrawal privilege	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
6. Withdrawal attention	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
7. Record Record	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
8. Appeal to fair-play	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
9. Appeal for co-operation	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
10. Require pupil decision	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
11. Consultation	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
12. Sarcasm	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
13. Threat	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
14. Send from room	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
15. Send to other adult	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
16. Physical punishment	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
17. Waiting	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
18. Focused glower	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
19. Indicate awareness	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
Effect																					
1. Lessening of pupil behaviour	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2. Strengthening of pupil behaviour	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3. No discernible change in pupil behaviour	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

APPENDIX E

MEASURE OF WORD KNOWLEDGE
MEASURE OF READING COMPREHENSION

DIAGNOSTIC AND ATTAINMENT TEST OF SPELLING

S. 2. GRADED WORD SPELLING TEST II

see	cut	mat	in	ran
bag	ten	hat	dad	bed
leg	dot	pen	yet	hay
good	till	be	with	from
time	call	help	week	pie
boat	mind	sooner	year	dream
sight	mouth	large	might	brought
mistake	pair	while	skate	stayed
yoke	island	nerve	join	fare
iron	health	direct	calm	headache
final	circus	increase	slippery	lodge
style	bargain	copies	guest	policy
view	library	cushion	safety	patient
account	earliest	institution	similar	generous
orchestra	equally	individual	merely	enthusiastic
appreciate	familiar	source	immediate	breathe
permanent	sufficient	broach	customary	especially
materially	cemetery	leisure	accredited	fraternally
subterranean	apparatus	portmanteau	politician	miscellaneous
mortgage	equipped	exaggerate	amateur	committee

APPENDIX F

(LOCUS-OF-CONTROL INSTRUMENT)
INTELLECTUAL ACHIEVEMENT RESPONSIBILITY QUESTIONNAIRE

MT. DRUITT LONGITUDINAL STUDY

QUESTIONS ABOUT SCHOOL

INSTRUCTIONS.

1. Read the questions and answers carefully.
2. Circle the answer you think is best, either A or B.
3. There are twenty questions altogether.
4. If you don't understand the question, put up your hand and ask for help.

PRACTICE ITEMS

P1 If the teacher said your work is good, is it

A. because the teacher is in a good mood, or
B because you tried hard?

P2. When you win games in the playground, is it

A because you played well, or
B. because you were lucky?

---

1 When you do well on a test at school, is it more likely to be

A. because you studied for it, or
B. because the test was especially easy?

2. When you have trouble understanding something in school, is it usually

A. because the teacher didn't explain it clearly, or
B. because you didn't listen carefully?

3. When you read a story and can't remember much of it, is it usually

A. because the story wasn't well written, or
B. because you weren't interested in the story?

4 If your parents say you are doing well in school, is it

A. because your school work is good, or
B. because they are in a good mood?

5 If you did better work than usual at school, would it be

A because you tried harder, or
B because someone helped you?

6. If you solve a puzzle quickly, is it

   A. because it wasn't a very hard puzzle, or
   B. because you worked on it carefully?

7. If you study to become a teacher or doctor and you fail, do you think this would happen

   A. because you didn't work hard enough, or
   B. because you needed some help, and other people didn't give it to you?

8. When you learn something quickly in school, is it usually

   A. because you paid attention, or
   B. because the teacher explained it clearly?

9. When you find it hard to work out the answers to sums at school, is it

   A. because you didn't practise enough before you tried them, or
   B. because the teacher gave sums that were too hard?

10. When you forget something you heard in class, is it

    A. because the teacher didn't explain it very well, or
    B. because you didn't try very hard to remember?

11. When you read a story and remember most of it, is it usually

    A. because you were interested in the story, or
    B. because the story was well written?

12. If your parents tell you you're acting silly and not thinking clearly, is it more likely to be

    A. because of something you did, or
    B. because they happen to feel cranky?

13. When you don't do well on a test at school, is it

    A. because the test was especially hard, or
    B. because you didn't study for it?

14. If people think you're clever, is it

    A. because they happen to like you, or
    B. because you usually act that way?

15 If you don't do as well as usual in your school work, would it be

A because you weren't as careful as usual, or
B because somebody bothered you and kept you from working?

16 If a boy or girl tells you that you are clever, is it usually

A because you thought up a good idea, or
B because they like you?

17 If your parents say you aren't doing well in your school work, is it

A because your work isn't very good, or
B because they are feeling cranky?

18 When you find it easy to work out the answers to sums at school, it is usually,

A because the teacher gave you easy problems, or
B because you studied your book well before you tried them?

19 When you remember something you heard in class, is it usually

A because you tried hard to remember, or
B because the teacher explained it well?

20 If a teacher says to you, "Try to do better", would it be

A because this is something she might say to get children to try harder, or
B because your work wasn't as good as usual?